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ABSTRACT

Using data from the Special Education Elementary Longitudinal Study that included 11,512 students (ages 6-12), this study explored the activities that students with disabilities engage in for the 80% of waking hours that they are not in school. The study focuses on three aspects of their nonschool experiences: family supports for education at home; interactions with friends; and participation in extracurricular activities. Findings indicate: (1) a majority of students received a high degree of support for education at home, with 90% reporting conversations with family members about school regularly; (2) poorer students were subject to lower expectations for educational attainment and were less likely to engage in regular conversations about school at home; (3) 90% of students met with friends away from school at least "occasionally" and received invitations to a friend's social event; (4) students with learning disabilities or speech/language, hearing, or other health impairments tended to be the most socially active, while students with autism, traumatic head injuries, multiple disabilities, and deaf-blindness had less frequent contacts with friends; and (5) three-fourths of the students were participating in extracurricular activities and programs through which they could explore interests, learn skills, and develop friendships. (Contains 83 references.) (CR)

October, 2002

# SEELS

# THE OTHER 80% OF THEIR TIME: THE EXPERIENCES OF ELEMENTARY AND MIDDLE SCHOOL STUDENTS WITH DISABILITIES IN THEIR NONSCHOOL HOURS



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## CONTENTS

## EXHIBITS

# 1. BEYOND THE CLASSROOM

Although school is considered by many people to be the primary learning environment for school-age children, in reality, they spend only 20% of their waking hours there. The other 80% of their time is spent at home with family members; at play with other children, taking part in extracurricular activities, pursuing individual interests, or engaging in community activities or various forms of recreation. All of these activities provide invaluable opportunities for "experiential learning," that is, "education that occurs from direct participation in the events of life (Houle, 1980, p. 221).

The breadth of learning that can occur in the nonschool hours is vast; students can explore a wide range of interests, hone nonacademic skills, try out alternative modes of learning, develop interpersonal competencies, and become proficient in increasingly complex activities of daily living. Opportunities for informal learning are important for all children, but may be particularly critical for students with disabilities that present challenges to their academic learning, social engagement, or functional independence. In fact, participation in routine activities and relationships at home, at school, and in the community is itself a goal for many students with disabilities.

Here, we describe what goes on in "the other 80%" of the waking hours of elementary and middle school students with disabilities—their nonschool time. We focus on three aspects of their nonschool experiences:

**Family supports for education at home.** Home is a child's first learning environment, and what goes on there can influence dramatically children's learning and development, including their ability to benefit from their school experiences. Parents can support the education of their children by communicating high, realistic expectations for children's learning and academic performance, by structuring children's time at home in support of learning experiences, and by investing their own time in children's learning through such activities as reading to them and helping with homework.

**Interactions with friends.** Friendships can enrich lives in valuable ways, and relationships with peers can contribute importantly to children's social development. Through interactions with friends, children can learn much about themselves, as well as learning negotiating skills and an appreciation of personal differences and wider perspectives; they can engage in activities they couldn't do alone; and they can enjoy the pleasures of shared interests.

**Participation in extracurricular activities.** Taking part in organized activities at school or in the community can have a wide range of benefits for students, including improved academic performance and greater avoidance of risk behaviors. The activities themselves expose students to a breadth of experience and opportunities for skill development and success that go beyond the limits of the classroom, and interacting with peers and adults in diverse settings outside the classroom enables students to expand their social skills.

We address these dimensions of students' nonschool experiencesusing data from the Special Education Elementary Longitudinal Study (SEELS). SEELS is one component of a portfolio of longitudinal studies that span the age range of children and youth with disabilities. These studies

and being sponsored by the Office of Special Education Programs (OSEP) of the U.S. Department of Education in response to requirements of the Individuals with Disabilities Education Act of 1997 (IDEA '97). The legislation authorized the "production of new knowledge" [Sec. 673(b)(1)] through a variety of federal activities, including "producing information on the long-term impact of early intervention and education on results for individuals with disabilities through large-scale longitudinal studies" [Sec. 673(b)(2)(H)].

SEELS is a valuable source of a breadth of information on the characteristics, experiences, and achievements of students with disabilities who were ages 6 through 12 in 1999. Information will be collected about these students three times, as they transition from elementary to middle and middle to high school, from parents, school staff, and the students themselves.[1] This document is the second in a series of reports of findings from SEELS that will emerge over the next 4 years. It presents information gathered from parents and guardians[2] of SEELS students through telephone interviews and a mail survey conducted in 2000-01.

Chapter 2 of the report briefly describes key characteristics of the students with disabilities who are represented in SEELS and of their households; this provides an important context for interpreting information about them and about comparisons with the general students population. Chapters 3 through 5 address the three dimensions of students' experiences outlined above: family supports for education at home, friendship interactions, and participation in extracurricular activities. Chapter 6 briefly discusses the relationships between the friendship and extracurricular experiences of students and their social skills, as reported by parents. The final chapter identifies key points about students' nonschool hours and how those experiences vary for different groups of students.

[1] More information about SEELS can be found at www.SEELS.net.

[2] For simplicity, parents and guardians are referred to here as parents.

## 2. DEMOGRAPHIC CHARACTERISTICS OF ELEMENTARY AND MIDDLE SCHOOL STUDENTS RECEIVING SPECIAL EDUCATION

**By Camille Marder and Mary Wagner**

An understanding of the characteristics of the students receiving special education is a crucial foundation for serving them well. Students approach their educational experiences from a complex history and background that is shaped by demographic characteristics, such as age, gender, and ethnicity; by family background and circumstances, such as parents' education and household income; and by the nature of the students' disabilities. These factors help structure students' involvement at home, at school, and in the community, as well as the ways in which students, parents, school staff, and other service personnel work together toward positive results for students. Thus, student and household characteristics are essential elements of the context for many major life experiences of students. In important ways, an understanding of that context will inform how we understand and interpret students' experiences, including the home learning experiences, friendships, and extracurricular activities that are reported here.

A brief summary of selected individual and household characteristics of students with disabilities is presented below.[3]

### Individual Characteristics

The nature of a student's disability can be a powerful influence on his or her experiences, both in and out of school. However, other fundamental characteristics of children, in addition to whether or not they have disabilities, also helps shape their development, relationships, experiences, and achievements. For young people, age is a major determinant of development and influences both children's competence and their independence. Gender is a defining characteristic of human beings and has both obvious and subtle influences on the ways children grow up. In addition, racial/ethnic background can be associated with rich cultural traditions and patterns of relationships within families and communities that can generate important differences in values, perspectives, expectations, and practices regarding children.

The importance of understanding the demographic makeup of the population of students receiving special education cannot be overemphasized; it is crucial in interpreting SEELS findings for the group as a whole and for students with particular disability classifications. It also is a foundation for interpreting comparisons between students receiving special education and those in the general population.

Below, we report the primary disability classifications among elementary and middle school students receiving special education and describe other traits that are important to their experiences, including their age, gender, and race/ethnicity. These are presented for students with disabilities as a whole, compared with the general student population when possible, and then described as they vary for students with different primary disability classifications.

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[3] A more detailed discussion of these characteristics, as well as more on the disability profiles and functional abilities of students can be found in Wagner & Blackorby (2002).

### Students' Primary Disabilities

In the 1999-2000 school year, students who received special education constituted 11.4% of all 6- to 13-year olds who were enrolled in school. Exhibit 2-1 depicts the primary disability classifications assigned by schools to those students (Office of Special Education Programs, 2001).

Almost three-fourths of students in this age group who were receiving special education were classified as having a learning disability (43%) or speech impairment (30%, Exhibit 2-1). Thus, when findings are presented for students with disabilities as a whole, they represent largely the experiences of students with learning and speech/language disabilities. Those with mental retardation, emotional disturbances, or other health impairments were 9%, 6%, and 4% of students, respectively. The seven remaining disability categories each were fewer than 2% of students.

**Exhibit 2-1**
**DISABILITY CATEGORY DISTRIBUTION OF CHILDREN RECEIVING SPECIAL EDUCATION, AGES 6 TO 13**

| Primary Disability Classification | Federal Child Count[4] | | SEELS Weighted |
|---|---|---|---|
| | Number | Percentage | Percentage |
| Specific learning disability | 1,428,939 | 43.20 | 41.54 |
| Speech/language impairment | 1,002,090 | 30.30 | 32.72 |
| Mental retardation | 292,833 | 8.82 | 8.84 |
| Emotional disturbance | 204,725 | 6.19 | 5.92 |
| Hearing impairment | 39,922 | 1.21 | 1.20 |
| Visual impairment | 14,658 | .44 | .45 |
| Orthopedic impairment | 42,406 | 1.28 | 1.29 |
| Other health impairment | 149,037 | 4.51 | 4.52 |
| Autism | 47,064 | 1.42 | 1.50 |
| Traumatic brain injury | 6,379 | .19 | .19 |
| Multiple disabilities | 59,685 | 1.80 | 1.80 |
| Deaf-blindness | 1,025 | .03 | .03 |
| Developmental delay[5] | 19,304 | .58 | -- |
| TOTAL | 3,307,067 | 100.00 | 100.00 |

The weighted distribution of SEELS students very closely approximates that of the Federal Child Count. Thus, weighted findings from SEELS provide an accurate picture of the characteristics, experiences, and achievements of children receiving special education for the range of disabilities highlighted in Exhibit 2-1.

### Age

Students represented in SEELS were not distributed evenly across the ages from 6 to 13 (Exhibit 2-2). Whereas the general population of 6- to 13-year olds contains roughly the same percentage of children of each single year of age, in the population represented by SEELS, 6- and 13-year-olds constituted only 6% and 3% of the population, respectively. This uneven distribution is largely the result of some 6-year-olds becoming 7 and some 12-year-olds becoming 13 between the time they were selected for the sample and data were collected, making the 6-year-old and 13-year-old cohorts smaller than others.

[4] Data are for children ages 6 to 13 who were receiving services under IDEA, Part B, in the 1999-2000 school year in the 50 states and Puerto Rico (OSEP, 2001).

[5] Students ages 8 and younger who were classified by school districts as having a developmental delay were reassigned to other categories for purposes of weighting the SEELS sample, using information from parent interviews. Schools also will reassign them when they reach age 9 if they continue to receive special education.

## Exhibit 2-2
## AGE, BY DISABILITY CATEGORY

| Age | All Students | Learning Disability | Speech/ Language Impair-ment | Mental Retarda-tion | Emotional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Ortho-pedic Impair-ment | Other Health Impair-ment | Autism | Traumatic Brain Injury | Multiple Dis-abilities | Deaf-Blindness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 or 7 | 18.4 | 6.6 | 35.4 | 15.3 | 12.3 | 17.7 | 18.3 | 23.2 | 13.1 | 28.2 | 13.9 | 22.6 | 7.6 |
| | (1.0) | (1.0) | (2.2) | (1.7) | (1.5) | (2.1) | (2.3) | (2.2) | (1.7) | (2.4) | (3.3) | (2.3) | (8.9) |
| 8 | 14.9 | 11.7 | 20.4 | 12.3 | 11.6 | 17.1 | 17.2 | 15.8 | 13.1 | 17.3 | 16.1 | 14.8 | 8.3 |
| | (.9) | (1.4) | (1.9) | (1.5) | (1.5) | (2.0) | (2.3) | (1.9) | (1.7) | (2.0) | (3.5) | (1.9) | (9.3) |
| 9 | 15.7 | 14.9 | 15.2 | 17.4 | 18.9 | 15.0 | 17.2 | 19.3 | 15.6 | 19.9 | 14.6 | 14.9 | 12.7 |
| | (.9) | (1.5) | (1.7) | (1.8) | (1.8) | (1.9) | (2.3) | (2.1) | (1.8) | (2.1) | (3.4) | (1.9) | (11.2) |
| 10 | 18.0 | 21.2 | 14.5 | 15.9 | 19.2 | 18.1 | 16.9 | 16.3 | 17.7 | 14.5 | 20.0 | 19.1 | 43.8 |
| | (.9) | (1.7) | (1.6) | (1.7) | (1.8) | (2.1) | (2.3) | (1.9) | (1.9) | (1.9) | (3.9) | (2.1) | (16.6) |
| 11 | 17.2 | 23.4 | 8.5 | 20.4 | 17.6 | 14.3 | 15.3 | 13.1 | 21.6 | 12.0 | 20.3 | 13.7 | 21.7 |
| | (.9) | (1.8) | (1.3) | (1.9) | (1.8) | (1.9) | (2.2) | (1.8) | (2.1) | (1.7) | (3.9) | (1.9) | (13.8) |
| 12 or 13 | 15.8 | 22.2 | 6.0 | 18.7 | 20.4 | 17.8 | 15.2 | 12.4 | 19.0 | 8.3 | 15.1 | 14.9 | 5.9 |
| | (.9) | (1.7) | (1.1) | (1.8) | (1.9) | (2.1) | (2.2) | (1.7) | (2.0) | (1.5) | (3.5) | (1.9) | (7.9) |
| Sample size | 9,744 | 1,050 | 837 | 867 | 875 | 1,033 | 815 | 990 | 923 | 1,101 | 361 | 843 | 49 |

Standard errors are in parentheses.

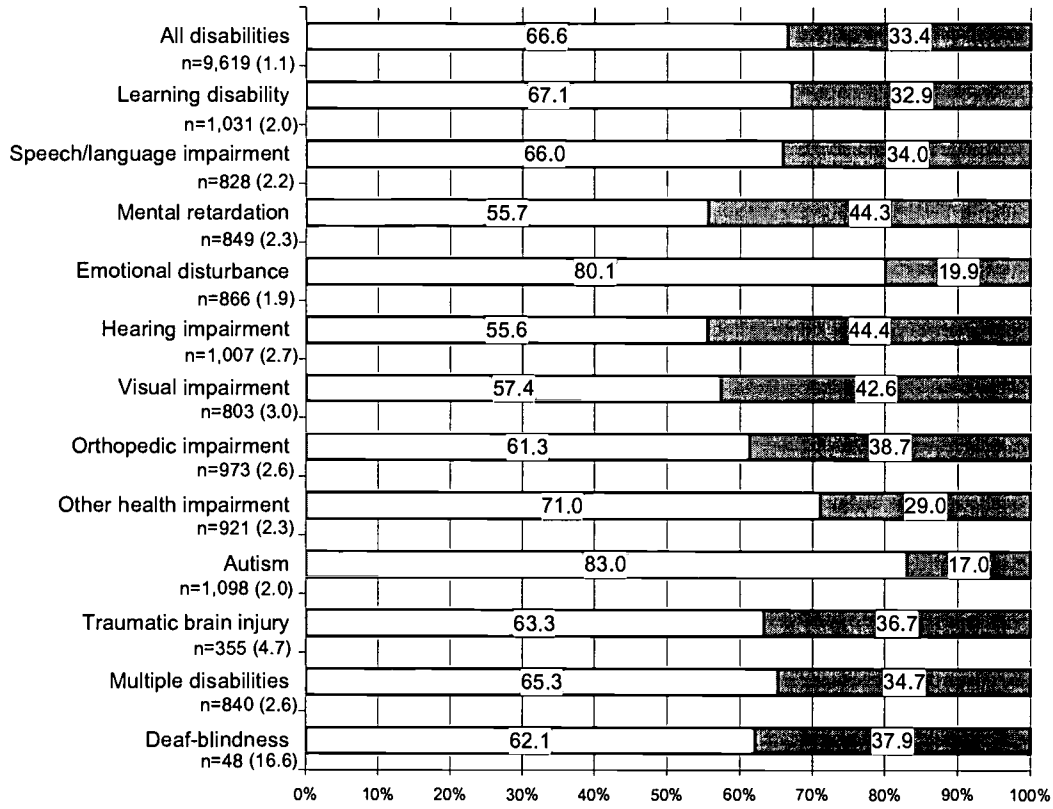
Differences in the age distributions of students in different disability categories were marked and should be noted in interpreting findings for those groups. For example, the identification of many speech and language disabilities at young ages resulted in students in that category being younger as a group; more than half of them were less than 9 years old, compared with fewer than one in five students with learning disabilities and about one in three students with hearing impairments ($p<.001$). At the other end of the continuum were students with deafness/blindness, most of whom were 10 or 11 years old. Students with learning disabilities or emotional disturbance also tended to be older than students with many other classifications. Thus, we are likely to see activities that are more common among younger students also more common for students with speech/language impairments and those more common among older students more prevalent for students with learning disabilities or emotional disturbances, for example

### Gender

Students represented by SEELS were approximately two-thirds boys and one-third girls (Exhibit 2-4), whereas boys in this age group are about 51% of the general population. The 2:1 ratio among children with disabilities has been found among infants and toddlers (Hebbeler et al., 2001), as well as among high-school age students (Marder & Cox, 1991).

For most disability classifications, boys made up between 60% and 71% of the population, but among students with emotional disturbances or autism, they were at least 80% of the population. In contrast, among students with mental retardation or hearing or visual impairments, the percentages were more balanced, with boys comprising approximately 56% of the population. Thus, the experiences of students in different disability categories may differ because of the gender differences between categories as well as the differences in disability.

## Exhibit 2-3
## STUDENT GENDER, BY DISABILITY CATEGORY




Standard errors are in parentheses.

### Race/Ethnicity

Elementary and middle school students receiving special education differed in some respects from the general population in terms of their racial/ethnic backgrounds (Exhibit 2-5). Although white students made up approximately the same percentage of students receiving special education as they did of the general population of same-age students (63%), differences were apparent between the two populations for African American students. African Americans constituted 19% of students with disabilities, compared with 17% of students in the general population ($p<.05$). In contrast, Hispanics were a slightly smaller proportion of the population of students receiving special education relative to students as a whole (14% vs. 15%), although the difference was not statistically significant.

The disproportionality of minorities among students with disabilities concentrated in a few categories. Whereas the racial/ethnic composition of students with learning disabilities or speech, hearing, visual, or orthopedic impairments resembled the general population, African Americans comprised significantly larger percentages of students with mental retardation (35%),

**Exhibit 2-4**
**STUDENTS' RACIAL/ETHNIC BACKGROUNDS, BY DISABILITY CATEGORY**

| | All Students | Learning Disability | Speech/ Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Autism | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage whose race/ ethnicity was: | | | | | | | | | | | | | |
| White | 63.2 (1.2) | 62.2 (2.0) | 66.7 (2.2) | 53.5 (2.3) | 56.9 (2.3) | 64.3 (2.6) | 62.4 (2.9) | 65.0 (2.5) | 77.0 (2.1) | 66.0 (2.5) | 57.0 (4.8) | 53.2 (2.7) | 60.9 (16.4) |
| African American | 19.2 (.9) | 17.9 (1.6) | 15.7 (1.7) | 34.7 (2.2) | 27.0 (2.1) | 14.4 (1.9) | 17.7 (2.3) | 17.5 (2.0) | 13.1 (1.7) | 16.9 (2.0) | 28.1 (4.3) | 30.5 (2.5) | 9.8 (9.9) |
| Hispanic | 13.7 (.8) | 16.4 (1.6) | 12.5 (1.5) | 8.9 (1.3) | 12.8 (1.6) | 16.0 (2.0) | 15.0 (2.2) | 14.5 (1.8) | 7.2 (1.3) | 11.0 (1.7) | 11.1 (3.0) | 14.1 (1.9) | 18.5 (13.0) |
| Asian/Pacific Islander | 1.6 (.3) | .7 (.4) | 2.7 (.8) | 1.5 (.6) | .6 (.4) | 4.0 (1.1) | 3.3 (1.1) | 2.0 (.7) | .4 (.3) | 4.5 (1.1) | 2.1 (1.4) | 1.3 (.6) | 2.0 (4.7) |
| American Indian/ Alaska Native | .7 (.2) | .9 (.4) | .4 (.3) | .3 (.3) | 1.1 (.5) | .6 (.4) | .4 (.4) | .2 (.3) | .9 (.5) | .5 (.4) | 1.3 (1.1) | .2 (.3) | 7.9 (9.0) |
| Sample size | | 1,050 | 835 | 866 | 875 | 1,033 | 815 | 990 | 923 | 1,101 | 360 | 842 | 49 |

Standard errors are in parentheses.

emotional disturbances (27%), multiple disabilities (30%), and traumatic brain injuries (28%; $p<.001$ for all differences with general population). Hispanic students were the smallest proportions of those with mental retardation, and other health impairments (7% and 9%; $p<.001$). These racial/ethnic differences between disability category may contribute to differences in students' experiences, apart from their differences in disability.

## Household Risk Factors

A child's household is his or her first educational setting. At home, children form their first emotional attachments, achieve their early developmental milestones, and acquire the foundation for their subsequent growth and learning. As important as their home setting is for all children, the disabilities of students receiving special education may make them particularly in need of attention, support, resources, and advocates at home. At the same time, their disabilities and the needs that accompany them may create added demands and stresses for others in students' households. Thus, the already complex dynamic of households with children can be made even more complex by the added element of a student's disability. How families respond to that complexity can influence the very nature of their childhood years.

Here, we examine several aspects of households that can be risk factors in children's development: having a low-income or a poorly educated or unemployed head of household, being born to a teenage mother, and living with other than two parents. The factors are described for students with disabilities as a whole compared with the general student population, and then for students who differ in their primary disability classification.

### Household Risk Factors for Students with Disabilities and the General Population

Like students in the general population, a large majority of students with disabilities (70%) lived in households with two parents (either biological, step, or adoptive parents, Exhibit 2-6). Another 23% lived with one parent. Thus, 93% of students with disabilities were living with a parent. An additional 4% lived with other adult family members in households that did not include one of their own parents, a rate higher than the general population (3%, $p<.05$). One

**Exhibit 2-5**
**LIVING ARRANGEMENTS OF STUDENTS WITH DISABILITIES AND STUDENTS IN THE GENERAL POPULATION**

| Percentage of Students with Household Characteristics | Students with Disabilities | Students in the General Population[a] |
|---|---|---|
| Living with: | | |
| Two parents | 70.3 (1.1) | 70.5 |
| One parent | 23.1 (1.1) | 25.9 |
| With relative(s) | 3.8 (.7) | 2.8[b] |
| In foster care | 1.0 (.2) | .5 |
| Other arrangement | 1.8 (.1) | .3 |
| Head of household not a high school graduate | 15.4 (.9) | 8.1 (.4) |
| Unemployed head of household | 14.0 (.8) | 10.3 (.5) |
| Annual household income of: | | |
| Less than $25,000 | 35.9 (1.3) | 24.4 |
| $25,000 to $50,000 | 31.9 (1.2) | 28.7 |
| More than $50,000 | 32.3 (1.2) | 46.9 |
| Sample size | 8,083 | |

[a] Figures are for 5- to 14-year-old children. Federal Interagency Forum on Child and Family Statistics (2001).
[b] Computed using data for 6- to 12-year-olds from the National Household Education Survey (1999). Sample size = 9,584.

percent of students with disabilities lived in foster care, a rate twice as high as children in the general population ($p<.05$; U.S. Department of Health and Human Services, 2001). The rate of students living in "other" arrangements was three times as high for students with disabilities as those in the general population in part because one in a thousand students with disabilities lived full time at a residential school or institution.[6]

[6] These included residential or boarding schools, hospitals, mental health facilities, group homes, and correctional facilities.

The heads of households of students with disabilities tended to have lower levels of education than parents of the general population of same-age students. In the general population, approximately 8% of heads of households were not high school graduates, whereas almost twice as many heads of households of children with disabilities had not graduated from high school (15%, $p<.001$). Similarly, heads of households of students with disabilities were more likely to be unemployed (14%) than those in the general population (10%, $p<.001$).

Consistent with lower education levels and rates of employment, students with disabilities were more likely than others to be poor. More than a third of elementary and middle school students with disabilities were living in a household with an annual income of less than $25,000, compared with 23% of children in the general population ($p<.001$). Almost half again as many children in the general population lived in households with incomes of more than $50,000 as children with disabilities.

### Disability Differences in Household Risk Factors

The prevalence of risk factors among households of students showed quite a wide range. There was a cluster of students who were more likely than others to experience high levels of each kind of risk; they included students with mental retardation, emotional disturbances, traumatic brain injury, multiple disabilities, and deaf blindness. These students were the least likely to be living with two parents. Students with mental retardation, emotional disturbances, traumatic brain injuries, or multiple disabilities were the most likely to be living in foster care and to come from households with a head of household who was not employed. Students with mental retardation, emotional disturbances, or deaf-blindness were the most likely to come from low-income households. Students with learning disabilities also experienced relatively high rates of some risk factors.

In contrast, students with speech or language impairments or autism had the lowest rates of some kinds of risk factors. For example, they were least likely to live in a low-income household or be in foster care and most likely to be living with two parents. In fact, they were somewhat less likely to experience each of these risk factors than students in the general population. Students with physical and sensory impairments were in the mid-range among the disability categories on many risk factors.

## Exhibit 2-6
## HOUSEHOLD CHARACTERISTICS, BY DISABILITY CATEGORY

| Percentage of Children | Learning Disability | Speech/ Language Impairment | Mental Retarda-tion | Emotional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Orthopedic Impairment | Other Health Impairment | Autism | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Living with: | | | | | | | | | | | | |
| Both parents | 69.7 | 77.7 | 56.3 | 52.2 | 73.9 | 75.0 | 73.7 | 73.2 | 77.6 | 59.2 | 57.4 | 58.1 |
| | (2.0) | (2.0) | (2.4) | (2.4) | (2.5) | (2.7) | (2.4) | (2.2) | (2.2) | (5.0) | (2.7) | (18.3) |
| One parent | 23.9 | 19.2 | 30.7 | 30.7 | 21.1 | 19.0 | 19.7 | 19.9 | 20.3 | 27.7 | 31.9 | 36.2 |
| | (1.9) | (1.9) | (2.3) | (2.2) | (2.3) | (2.4) | (2.2) | (2.0) | (2.2) | (4.5) | (2.5) | (17.8) |
| Relative(s) | 3,5 | 2.2 | 8.2 | 8.0 | 2.9 | 2.4 | 4.3 | 4.1 | .9 | 6.6 | 5.8 | 2.6 |
| | (.8) | (.7) | (1.3) | (1.3) | (1.0) | (.9) | (1.1) | (1.0) | (.5) | (2.5) | (1.3) | (5.9) |
| In foster care | 1.0 | .1 | 2.3 | 4.6 | .2 | 1.0 | 1.0 | .3 | .2 | 2.1 | 1.9 | .0 |
| | (.4) | (.2) | (.7) | (1.0) | (.2) | (.6) | (.6) | (.3) | (.2) | (1.4) | (.7) | (.0) |
| Other arrangement | 1.9 | .9 | 2.6 | 4.4 | 1.9 | 2.7 | 1.3 | 2.5 | 1.1 | 4.5 | 3.0 | 3.1 |
| | (.2) | (.4) | (.7) | (1.0) | (.7) | (1.0) | (.7) | (.8) | (.6) | (2.0) | (.9) | (6.3) |
| With head of household who was: | | | | | | | | | | | | |
| Not a high school graduate | 16.3 | 13.0 | 25.7 | 17.6 | 13.2 | 9.6 | 11.4 | 6.5 | 4.8 | 15.3 | 17.0 | 1.3 |
| | (1.6) | (1.6) | (2.1) | (1.8) | (1.9) | (1.8) | (1.7) | (1.2) | (1.1) | (3.5) | (2.1) | (3.9) |
| Unemployed | 15.3 | 9.1 | 25.0 | 19.9 | 13.6 | 13.0 | 12.9 | 8.8 | 8.8 | 18.6 | 20.7 | 14.3 |
| | (1.5) | (1.4) | (2.0) | (1.9) | (1.9) | (2.0) | (1.8) | (1.4) | (1.5) | (3.8) | (2.2) | (11.8) |
| In households with annual income of $25,000 or less | 44.0 | 33.3 | 59.0 | 54.1 | 41.2 | 36.8 | 36.4 | 29.1 | 23.7 | 38.2 | 44.9 | 56.1 |
| | (2.2) | (2.3) | (2.4) | (2.4) | (2.8) | (3.0) | (2.7) | (2.3) | (2.3) | (5.0) | (2.8) | (18.0) |
| Sample size | 847 | 705 | 724 | 721 | 858 | 695 | 825 | 907 | 1,075 | 307 | 796 | 40 |

Standard errors are in parentheses.

## Summary

Students with disabilities made up 11% of all students between the ages of 6 and 13. Although they included students with 12 different primary disability classifications, three-fourths were classified as having either learning disabilities or speech/language impairments as their primary disabilities.

Although SEELS represents students who were 6 to 13 years old when data were collected, most students were in the 8- to 11-year-old age range, for the group as a whole and for each disability category. Students with speech/language impairments had a larger proportion of younger students, whereas learning disabilities and emotional disturbances were categories that had larger proportions of older students.

Two-thirds of students were boys; however, boys were approximately 56% of students with hearing impairments, mental retardation, and visual impairments, but they were 80% or more of students with emotional disturbances and autism.

African American students were somewhat overrepresented among students with disabilities relative to the general population, and Hispanic students were slightly underrepresented among students with disabilities. The differences in the two populations of elementary- and middle-school-age students are consistent with patterns found among infants and toddlers with disabilities developmental delays as well as high-school-age students receiving special education. However, disproportionality concentrated among students in a limited number of disability categories. African Americans made up particularly large proportions of those with mental retardation, emotional disturbances, traumatic brain injuries, and multiple disabilities. The percentage of Hispanic students was particularly small among students with other health impairments and mental retardation.

The households of students with disabilities also differed significantly from the general population in the prevalence of several risk factors. Of particular note was the significantly higher rate of low-income households among students with disabilities, probably a reflection, in part, of the overall lower levels of education and employment among heads of households of students with disabilities. Several risk factors were particularly prominent among students with mental retardation, emotional disturbances, traumatic brain injuries, multiple disabilities, and deaf-blindness.

Understanding these important differences between students with disabilities and those in the general population, and the highlighted differences between students with different primary disability classifications is an important foundation for understanding the experiences described in the remainder of this report.

# 3. FAMILY SUPPORTS FOR EDUCATION AT HOME

**By Lynn Newman, Mary Wagner, and Anne-Marie Guzman**

"When parents are involved in their children's education at home, their children do better in school" (Henderson and Berla, 1994). This simple statement summarizes the findings from a comprehensive review of research on family involvement in support of children's education. The evidence is incontrovertible: parent support for learning is an important contributor to students' success in school (Thorkildsen & Stein, 1998; Chavkin, 1993; Epstein, 1987, 1996; Hess and Halloway, 1984). Parent involvement in home-based education-related activities, such as talking about school and helping with homework, communicates to students the importance of school (Hoover-Dempsey and Sandler, 1995). Positive outcomes associated with family involvement in and support for education include: better grades and test scores (Clark, 1983), more consistent attendance (National Middle School Association, 2000) and homework completion (Epstein, Simon, & Salinas, 1997), more positive attitudes and behavior (Epstein, 1987), and increased probabilities of high school completion (Rumberger et al., 1990) and postsecondary education enrollment (Eagle, 1989).

Factors that have been found to contribute importantly to children's learning and school performance include such things as establishing a daily family routine that supports learning, monitoring out-of-school activities, modeling learning activities, and holding high, but realistic, expectations for achievement. These activities are no less important for students with disabilities. In fact, "family involvement is considered essential to improving educational results for children with disabilities" (Council for Exceptional Children, 2001).

This chapter examines the extent to which these kinds of support for learning and school are provided at home to elementary and middle school students with disabilities. It begins with a focus on families' expectations for their children's future education, and continues with a discussion of family behaviors or activities at home that support learning, followed by a discussion of family rules regarding behaviors such as the amount and type of television watched and having a specified bed time. We conclude with an examination of the relationships among these aspects of family support for education at home.

## Parents' Expectations for Students' Education

Research has demonstrated that having clear, consistent, and high expectations for students' learning and academic performance plays a key role in student achievement (e.g., Thorkildsen & Stein, 1998). Thus, encouraging parents to hold high, realistic expectations for student achievement is a key message of many parenting education and parent involvement programs (e.g., North Central Regional Education Laboratory, 2002). Such expectations are no less important for students with disabilities than other students, but finding the appropriate balance between high expectations for achievement and a realistic assessment of aptitude and potential, in light of students' disabilities, may be particularly challenging for parents of students with disabilities.

SEELS has investigated the expectations of parents of elementary and middle school students with disabilities regarding their children's high school completion and postsecondary education

enrollment and completion.[1] Questions about students' future educational attainment may be difficult to answer because they ask parents to speculate about actions that will not occur for several years, and parents' expectations may change as students' school careers unfold. Nonetheless, understanding such expectations is important because they can help shape both students' attitudes and behaviors toward their schooling and parents' own actions in support of students' learning.

Almost two-thirds of students with disabilities had parents who "definitely" expected them to graduate from high school with a regular high school diploma (Exhibit 3-1) and 28% expected they "probably" would; only 7% of students were expected "probably" or "definitely" not to graduate from high school. These expectations were substantially higher than actual graduation rates for students with disabilities. Data collected annually from state education agencies by OSEP reveals that in the 1999-2000 school year, 57% of students ages 14 to 21 who left school did so by graduating with a regular high school diploma (Office of Special Education Programs, 2001b).

**Exhibit 3-1**
**PARENTS' EXPECTATION OF STUDENTS' FUTURE EDUCATIONAL ATTAINMENT[1]**

| | Percentage | Standard Error |
|---|---|---|
| Percentage expected to graduate from high school: | | |
| Definitely will | 65.1 | 1.2 |
| Probably will | 27.6 | 1.1 |
| Probably/definitely won't | 7.3 | 0.6 |
| Percentage expected to attend school after high school: | | |
| Definitely will | 31.8 | 1.1 |
| Probably will | 45.9 | 1.2 |
| Probably/definitely won't | 22.3 | 1.0 |
| Percentage expected: | | |
| Definitely to graduate from a 4-year college | 19.5 | 1.0 |
| Probably to graduate from a 4-year college | 43.5 | 1.2 |
| Definitely or probably to graduate from a 2-year college | 10.8 | .7 |
| Not to graduate from a 2- or 4-year college | 26.1 | 1.1 |
| Sample size = 9,245 | | |

Parents were far less confident that students would attend or graduate from postsecondary school. Almost one-third of students were expected "definitely" to continue on to postsecondary school, and 46% were expected "probably" to further their educations after high school. Postsecondary education was considered unlikely by parents of almost one-fourth of students with disabilities. One in five students were expected definitely to graduate from a 4-year college, 44% were expected probably to graduate from a 4-year college. Graduating from a 2-year college was a less common expected future scenario (11%). More than one-fourth were thought "definitely" or "probably" not to graduate from either a 2- or 4-year college, which was consistent with the percentage considered unlikely even to attend postsecondary school.

Similar to expectations regarding high school graduation, expectations about postsecondary education were markedly more positive than were actual rates of

[1] Not all parents were asked all four expectations questions. If a student was not expected to graduate from high school, his/her parent was not asked about expectations about enrolling in postsecondary education or graduation. If a student was not expected to go on to postsecondary education, his/her parent was not asked about college graduation. Finally, parents were asked expectations of 2-year college graduation only if students were not expected to graduate from a 4-year college.

postsecondary education enrollment. A national study of secondary school students with disabilities demonstrated that, in 1990, only 27% of youth with disabilities who had been out of secondary school 3 to 5 years had been enrolled in any kind of postsecondary education since leaving high school (Marder, 1992)[2]; the rate was 37% among high school graduates with disabilities. Enrollment in 4-year colleges or universities was much less common; only 4% had done so at any time since leaving high school.

### Disability Category Differences in Educational Expectations

Here we discuss differences in parental educational expectations based on disability category. Clearly, parental expectations are influenced by a number of factors, and the nature and severity of their child's disability is an important consideration. Nevertheless, differences of severity within and across disabilities are not easily measured, and the subjectivity of "severity" makes it nearly impossible to quantify. Deaf-blindness may be more limiting than speech impairment, but how much more so, and by what standard? Just as children vary in their disability status, so do they vary greatly in their ability to cope. Moreover, the characteristics of structural/functional disabilities (e.g., orthopedic impairment) and behavioral disabilities (e.g., autism) are so different as to render most comparisons meaningless. Accordingly, this report makes no attempt to classify disabilities based on subjective or objective "severity."

That said, there were some dramatic differences in expectations about future educational attainment for students in different disability categories. Expectations were highest for students with learning disabilities or speech, hearing, or visual impairments. Two-thirds or more were expected "definitely" to graduate from high school with a regular diploma, as were 61% of those with orthopedic or other health impairments. These were the youth with among the highest actual rates of graduating from high school with a regular diploma (e.g., 62% and 66% for students with learning disabilities and speech/language impairments, respectively; OSEP, 2001). Postsecondary education enrollment expectations also were higher for students with learning disabilities or speech, hearing, or visual impairments relative to others, although students with learning disabilities or other health impairments were not expected definitely to attend postsecondary education with the same frequency as the others (30% and 27% vs. 36% to 43%). In fact, between 30% and 60% of students in these categories had enrolled in postsecondary education 3 to 5 years after high school (Marder, 1992), with the lowest of these rates being for students with learning disabilities and other health impairments. Parents' confidence that students with learning disabilities or other health impairments would graduate from a 4-year college was lower than for those with speech or sensory impairments; 16% and 21% were expected definitely to do so, compared with 25% to 31% of students with speech, hearing, or visual impairments. Two-year college graduation was considered a probability for between 1% (students with deaf-blindness) and 16% of students (those with traumatic brain injuries).

Students with mental retardation, autism, multiple disabilities, or deaf-blindness were the least likely to be expected to graduate from high school with a regular diploma or to attend

[2] These postsecondary enrollment rates are from 1990. Although much has changed in post-graduation trends since 1990, these are the most current available comparison data. For example, enrollment in degree-granting institutions in the general students population increased by about 5% in the ensuing decade (National Center for Education Statistics, 2001). If enrollment of students with disabilities increased by a similar amount, that rate would still fall well short of parents' expected levels of enrollment and graduation.

postsecondary school. About one-fourth of students with mental retardation or autism, one-third of those with multiple disabilities, and almost two-thirds of students with deaf-blindness were not expected to graduate from high school; in fact, greater proportions actually failed to do so (e.g., 60% of those with mental retardation and half of those with multiple disabilities; OSEP, 2001). From almost half to three-fourths of students in these categories were not expected to pursue education after high school. Most students with mental retardation, autism, multiple disabilities and deaf-blindness were not expected to

## Exhibit 3-2
## PARENTS' EXPECTATIONS OF STUDENTS' FUTURE EDUCATION ATTAINMENT, BY DISABILITY CATEGORY

| Percentage expected: | Learning Disability | Speech/ Language Impairment | Mental Retarda-tion | Emotional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Orthopedic Impairment | Other Health Impairment | Autism | Traumatic Brain Injury | Multiple Disabilities | Deaf-Blindness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| To graduate from high school: | | | | | | | | | | | | |
| Definitely will | 66.7 | 77.5 | 34.3 | 52.2 | 70.2 | 66.7 | 61.1 | 61.0 | 36.2 | 51.3 | 33.8 | 20.5 |
| | (2.0) | (2.0) | (2.3) | (2.4) | (2.5) | (2.9) | (2.6) | (2.5) | (2.6) | (5.0) | (2.6) | (13.6) |
| Probably will | 28.0 | 20.4 | 42.4 | 36.2 | 24.5 | 20.4 | 28.7 | 31.8 | 35.9 | 33.5 | 33.9 | 14.0 |
| | (1.9) | (1.9) | (2.3) | (2.3) | (2.4) | (2.5) | (2.4) | (2.3) | (2.6) | (4.7) | (2.6) | (11.7) |
| Probably/definitely won't | 5.3 | 2.1 | 23.3 | 11.7 | 5.4 | 13.0 | 10.2 | 7.3 | 27.8 | 15.3 | 32.3 | 65.6 |
| | (1.0) | (.7) | (2.0) | (1.5) | (1.2) | (2.1) | (1.6) | (1.3) | (2.4) | (3.6) | (2.6) | (16.1) |
| To attend school after high school: | | | | | | | | | | | | |
| Definitely will | 30.2 | 42.7 | 13.1 | 20.3 | 37.1 | 42.0 | 35.7 | 27.4 | 18.1 | 18.6 | 15.1 | 7.6 |
| | (2.0) | (2.4) | (1.6) | (1.9) | (2.7) | (3.0) | (2.6) | (2.3) | (2.1) | (3.8) | (2.0) | (9.3) |
| Probably will | 48.8 | 45.2 | 37.4 | 48.0 | 47.2 | 37.9 | 42.1 | 45.7 | 37.1 | 51.2 | 38.4 | 17.3 |
| | (2.2) | (2.4) | (2.3) | (2.4) | (2.8) | (3.0) | (2.7) | (2.5) | (2.6) | (4.9) | (2.7) | (13.2) |
| Probably/definitely won't | 21.0 | 12.1 | 49.5 | 31.7 | 15.8 | 20.2 | 22.3 | 27.0 | 44.8 | 30.2 | 46.6 | 75.1 |
| | (1.8) | (1.6) | (2.4) | (2.2) | (2.0) | (2.4) | (2.2) | (2.2) | (2.7) | (4.5) | (2.8) | (15.5) |
| Definitely will graduate from a 4-year college | 16.2 | 30.8 | 4.9 | 9.9 | 25.0 | 29.3 | 21.4 | 14.3 | 9.8 | 7.7 | 8.9 | 4.1 |
| | (1.6) | (2.2) | (1.0) | (1.4) | (2.4) | (2.8) | (2.2) | (1.8) | (1.6) | (2.6) | (1.6) | (7.0) |
| Probably will graduate from a 4-year college | 45.0 | 47.3 | 29.4 | 41.3 | 46.4 | 42.8 | 43.5 | 41.5 | 31.7 | 40.6 | 31.3 | 13.0 |
| | (2.2) | (2.4) | (2.2) | (2.4) | (2.8) | (3.0) | (2.7) | (2.5) | (2.5) | (4.9) | (2.6) | (11.8) |
| Definitely or probably will graduate from a 2-year college | 13.4 | 7.5 | 8.7 | 13.4 | 10.5 | 5.7 | 9.4 | 13.7 | 8.8 | 16.6 | 9.2 | .5 |
| | (1.5) | (1.3) | (1.4) | (1.6) | (1.7) | (1.4) | (1.6) | (1.7) | (1.5) | (3.7) | (1.6) | (2.4) |
| Not expected to graduate from a 2- or 4-year college | 25.3 | 14.4 | 57.0 | 35.4 | 18.1 | 22.3 | 25.7 | 30.5 | 49.7 | 35.1 | 50.6 | 82.4 |
| | (1.9) | (1.7) | (2.4) | (2.3) | (2.2) | (2.6) | (2.4) | (2.3) | (2.7) | (4.7) | (2.8) | (13.3) |
| Sample size | 972 | 792 | 805 | 815 | 984 | 777 | 932 | 906 | 1,073 | 341 | 802 | 45 |

graduate from postsecondary school. Actual postsecondary enrollment rates 3 to 5 years after secondary school for these categories of students ranged from 9% to 13% (Marder, 1992).

### Demographic Differences in Educational Expectations

Although there were no significant differences between boys and girls in their parents' expectations for their future education attainment, other demographic differences between students were noted.

**Age.** Expectations for students' educational attainment generally were highest for the youngest students (Exhibit 3-3). For example, students ages 6 to 8 were more likely than those ages 9 to 12 to be expected "definitely" to graduate from high school (68% vs. 62%, $p<.05$), to attend school after high school (35% vs. 28%, $p<.01$), and to graduate from a 4-year college (24% vs. 15%, $p<.001$). Expectations were even lower among parents of secondary school students with disabilities: 46% believed their high school-age children "definitely" would graduate from high school with a regular diploma, and 5% believed they "definitely" would graduate from a 4-year college (Valdes, Williamson, & Wagner, 1990).

**Exhibit 3-3**
**PARENTS' EXPECTATIONS OF STUDENTS' FUTURE EDUCATION ATTAINMENT, BY AGE**

| | Age | |
|---|---|---|
| Percentage expected | 6 to 8 | 9 to 12 |
| To graduate from high school | | |
| Definitely will | 68.1 | 62.4 |
| | (1.6) | (1.7) |
| Probably will | 26.5 | 28.7 |
| | (1.5) | (1.6) |
| Probably/definitely won't | 5.5 | 8.9 |
| | (.8) | (1.0) |
| To attend school after high school | | |
| Definitely will | 35.4 | 28.2 |
| | (1.7) | (1.6) |
| Probably will | 46.7 | 45.2 |
| | (1.7) | (1.8) |
| Probably/definitely won't | 18.0 | 26.4 |
| | (1.3) | (1.6) |
| Definitely will graduate from a 4-year college | 24.3 | 15.1 |
| | (1.5) | (1.3) |
| Probably will graduate from a 4-year college | 46.7 | 40.4 |
| | (1.8) | (1.1) |
| Definitely or probably will graduate from a 2-year college | 7.7 | 13.8 |
| | (.9) | (1.2) |
| Not expected to graduate from a 2- or 4-year college | 21.2 | 30.7 |
| | (1.4) | (1.6) |
| Sample size | 4,704 | 4,259 |

It is unclear whether these differences in expectations among parents of children in different age groups indicates that parents' expectations decline as students age and their abilities to take on complex educational activities are more clearly demonstrated, or that they reflect the different mix of disabilities between older and younger students. For example, younger students include a higher proportion of those with speech/language impairments, whose parents also hold relatively high expectations for their educational attainment. Examples such as this highlight the potentially misleading nature of cross-sectional comparisons and the importance of longitudinal study designs in age-related research.

**Household income**. There were dramatic differences between students from households with different levels of income, with lower expectations generally held for poorer students (Exhibit 3-4). The income measure used here is based on three levels of income. As such, trends are easily distinguished. For example, there is a clear trend in the relationship between expectations of high school graduation and household income. Fifty-three percent of students in households of $25,000 or less were expected definitely to graduate from high school with a regular diploma and 23% were expected definitely to attend postsecondary school, compared with 80% and 45% of those in households with incomes up to $50,000 ($p<.001$). The number of middle-income students expected to graduate from high school and to attend college fell between the higher and lower-income groups. These income-related differences also were reflected in expectations of high school students with disabilities and in their actual graduation rates (Valdes, Williamson, & Wagner, 1990). Elementary and middle school students in lower-income households also were less likely to be expected definitely to graduate from a 4-year college (13%) than wealthier peers (29%, $p<.001$). Lower expectations for postsecondary education for poorer children may reflect parents' acknowledgement of the difficulty of affording college, lower expectations for high school graduation may reflect the generally lower graduation rates in many schools with large proportions of low-income students.

**Exhibit 3-4**

## PARENTS' EXPECTATIONS OF STUDENTS' FUTURE EDUCATIONAL ATTAINMENT, BY INCOME AND RACE/ETHNICITY

| | Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| Percentage expected: | $25,000 or Less | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaska Native |
| To graduate from high school | | | | | | | | |
| Definitely will | 53.1 | 67.7 | 79.5 | 68.6 | 57.1 | 58.8 | 61.2 | 84.1 |
| | (2.0) | (2.2) | (1.8) | (1.4) | (2.8) | (3.6) | (11.0) | (11.4) |
| Probably will | 38.2 | 26.2 | 14.6 | 23.9 | 34.5 | 35.5 | 34.9 | 14.2 |
| | (2.0) | (2.0) | (1.6) | (1.3) | (2.7) | (3.5) | (10.8) | (10.9) |
| Probably/definitely won't | 8.7 | 6.1 | 5.9 | 7.4 | 8.4 | 5.7 | 3.9 | 1.6 |
| | (1.1) | (1.1) | (1.0) | (.8) | (1.6) | (1.7) | (4.4) | (4.0) |
| To attend school after high school | | | | | | | | |
| Definitely will | 22.9 | 29.9 | 45.5 | 31.8 | 31.2 | 31.9 | 40.8 | 37.8 |
| | (1.7) | (2.1) | (2.2) | (1.4) | (2.6) | (3.4) | (11.1) | (15.9) |
| Probably will | 49.6 | 46.9 | 40.7 | 44.9 | 45.5 | 49.2 | 46.0 | 57.1 |
| | (2.1) | (2.3) | (2.2) | (1.5) | (2.8) | (3.7) | (11.3) | (16.3) |
| Probably/definitely won't | 27.5 | 23.2 | 13.8 | 23.3 | 23.3 | 18.9 | 13.2 | 5.2 |
| | (1.8) | (2.0) | (1.6) | (1.2) | (2.4) | (2.9) | (7.6) | (7.3) |
| Definitely to graduate from a 4-year college | 13.3 | 18.7 | 28.8 | 18.1 | 18.6 | 24.3 | 35.8 | 25.7 |
| | (1.4) | (1.8) | (2.0) | (1.1) | (2.2) | (3.2) | (10.9) | (13.8) |
| Probably to graduate from a 4-year college | 44.7 | 42.8 | 44.0 | 42.2 | 46.1 | 47.0 | 41.0 | 29.0 |
| | (2.1) | (2.3) | (2.2) | (1.5) | (2.8) | (3.7) | (11.1) | (14.3) |
| Definitely or probably to graduate from a 2-year college | 9.3 | 12.6 | 11.1 | 12.0 | 8.3 | 7.6 | 9.3 | 37.8 |
| | (1.2) | (1.5) | (1.4) | (1.0) | (1.6) | (2.0) | (6.6) | (15.3) |
| Not to graduate from a 2- or 4-year college | 32.7 | 25.8 | 16.1 | 27.7 | 27.0 | 21.1 | 13.9 | 7.6 |
| | (1.9) | (2.0) | (1.7) | (1.3) | (2.5) | (3.0) | (7.8) | (8.4) |
| Sample size | 3,295 | 2,424 | 2,921 | 5,801 | 1,945 | 1,154 | 192 | 57 |

**Race/ethnicity**. Differences in expectations between white and minority students' parents were inconsistent. White students with disabilities were more likely to be expected definitely to graduate from high school than African American or Hispanic students ($p<.001$ and $<.05$, respectively), although in 1990 the actual rates of graduation for these groups did not differ (Valdes, Williamson, & Wagner, 1990). Parents of American Indian and Alaska Native students had the highest expectations for high school graduation and for postsecondary education; 84% believed their children "definitely" would graduate from high school, and 95% believed they were likely to attend college. Graduation from a 2-year college was expected more often for these students than other groups. Also, there were no differences between white and African American or Hispanic students regarding expectations about attending school after high school or graduating from college.

## Family Supports At Home

One way that parents can demonstrate their support for education is to maintain a home environment that encourages learning and focuses on school-related issues. Family support for learning and school can be demonstrated in a variety of home activities, ranging from talking with children about school and school events, to reading to or with children, to helping with homework. A supportive home environment also provides the tools necessary for homework tasks, such as a quiet place to do homework and access to a computer. Exhibit 3-5 reveals the extent to which students with disabilities had these kinds of supports at home. Summary data is presented first, followed by crosstabulations by disability categories and demographics, including age-based differences in educational support.

**Exhibit 3-5**
**SUPPORT FOR EDUCATION AT HOME**

| | Percentage | Standard Error | Sample Size |
|---|---|---|---|
| Percentage whose families reported talking with them about school: | | | 8,274 |
| Regularly | 90.4 | .8 | |
| Occasionally | 7.1 | .7 | |
| Rarely or never | 2.5 | .4 | |
| Percentage whose families reported reading to them: | | | 9,315 |
| Every day | 29.5 | 1.1 | |
| 3-6 times a week | 33.4 | 1.1 | |
| 1-2 times a week | 28.5 | 1.1 | |
| Not at all | 8.6 | .7 | |
| Percentage whose families reported helping them with homework: | | | 7,229 |
| 5 or more times a week | 55.4 | 1.3 | |
| 3-4 times a week | 27.3 | 1.2 | |
| 1-2 times a week | 13.6 | .9 | |
| Less than once a week | 3.7 | .4 | |
| Percentage reported to have at home: | | | |
| A quiet/appropriate place for homework | 96.2 | .5 | 7,278 |
| A computer | 64.0 | 1.2 | 8,327 |
| A computer used for educational purposes | 74.9 | 1.4 | 5,568 |

### Types of Family Support for Learning at Home

**Talking about school experiences.** Parents can communicate to their children that school is important by paying attention to school issues, and by asking questions and talking about their children's school day. Conversations about daily classroom events, projects, homework assignments, or field trips signal that education is valued and can be "one of the stronger predictors of student achievement (Balli, Demo, & Wedman, 1998, quoted in National Middle School Association, 2000,

p. 3). More than 90% of elementary and middle school students with disabilities were reported to live in households where conversations about their school experiences took place regularly. Fewer than 3% more reported to rarely or never talk about school with adults at home.

**Reading with or to children at home.** Reading to children at home improves their literacy skills (NCES 1998). Spending more time reading to young children has been linked to stronger educational outcomes; conversely, "reading to young children fewer than four times a week is associated with lower achievement in adolescence" (Adams, Treiman, and Pressley, 1998). Parents were asked to report how frequently they read to their children in a typical week. Almost three in 10 students had parents who read to them every day; more than a third (37%) were read to only once or twice a week, or not at all.

**Helping with homework**. Parents' investment of time in helping students with homework communicates the importance they place on school work. It also can increase students' understanding of the content and skills entailed in homework assignments. Encouraging students to do their homework and helping with homework can improve the quality of students' academic work and their attitudes toward school (Epstein, Simon, & Salinas, 1997). Families of children with disabilities were strongly involved in providing support at home for school work. More than half (55%) of students with disabilities had parents who reported supervising and assisting them with homework five or more times a week, with 83% receiving help with homework at least three times a week.

Children with disabilities were markedly more likely to receive homework assistance frequently than were their peers in the general population. Only 16% of parents of elementary school students in the general population reported helping with homework five or more times a week, compared with 55% of parents of children with disabilities (NCES, 1998b). More than a quarter of children in the general population received homework help less than once a week. In contrast, only 4% of those with disabilities received such infrequent assistance (NCES, 1998b).

**Resources for doing school work.** In addition to direct homework assistance, families can contribute to students' success by providing a suitable place and the necessary tools to do homework. For example, having a quiet place to study has been shown to relate to better student performance (Yap & Enoki, 1994; Henderson and Berla, 1994). Almost all young students with disabilities (96%) had parents who reported providing a quiet, appropriate place at home for students to do homework. Nearly two-thirds (64%) of students lived in households with a computer, virtually the same as the percentage of children in the general population (65%; U.S. Bureau of the Census, 2002). Almost three-fourths of students with disabilities who had a computer at home used it for homework and other educational purposes.

**Exhibit 3-6**
**FAMILY SUPPORT SCALE**

| | Percentage | Standard Error |
|---|---|---|
| Family support scale score | | |
| Very high (12) | 23.7 | 1.1 |
| High (11) | 25.5 | 1.1 |
| Medium (9 or 10) | 35.2 | |
| Low (3 to 8) | 15.8 | 0.8 |

Sample size=7,210

**A scale of family support at home.** To assess the level of family support for education at home more broadly, a scale was created to examine the extent to which parents exhibited three educational support behaviors at home—talking about school, reading to or with students, and helping with homework. Summing the values from 1 to 4 on each item resulted in a scale ranging from 3 (the least involved on all items) to 12 (most involved on all items; Exhibit 3-6).

Almost a quarter of students lived in households with very high support (a score of 12); these students had families in which adults spoke with them about school regularly, read to them on daily, and helped them with homework at least 5 days a week. More than 15% of students had parents who reported low levels of involvement across, receiving scores of 3 to 8 on the family support scale.

### Disability Category Differences in Family Support for Learning at Home

The level of support provided to students with disabilities at home varied for students with different kinds of disabilities (Exhibit 3-7). Between 21% and 28% of families of students in most disability categories reported very high family support; the exception was students with emotional disturbances (18%), who were among the least likely to be read to or helped with homework frequently, to have a computer at home, and to use a home computer for educational purposes.

Some dimensions of family support varied more than others. Although the vast majority of children in each of the disability categories had families who regularly spoke with them about school, students with multiple disabilities, deaf-blindness, other health impairments, or mental retardation were less likely than those in most other disability categories to have parents who regularly did so (between 81% and 85%, compared with 90% or more for most other categories).

More than 60% of students in many disability categories had family members who frequently read to them; exceptions were students with learning disabilities, emotional disturbances, and deaf-blindness. Almost all students in all of the disability categories were reported to have an appropriate, quiet place to do their homework. However, there was substantial variation in having a computer at home. More than 70% of students with speech, orthopedic, or other health impairments, autism, or deaf-blindness had access to a computer at home, whereas only 51% of those with mental retardation ($p<.001$), and 55% of those with serious emotional disturbances or multiple disabilities ($p<.001$) had a computer at home. Also, students who had a computer at home were not equally likely to use it for educational purposes. Only slightly more than 20% of students with deaf-blindness and between 63% and 67% of students with emotional disturbances, visual impairments, and multiple disabilities used their home computer for school-related work, compared with more than 80% of students with hearing and orthopedic impairments ($p.<01$).

## Exhibit 3-7
## SUPPORT FOR EDUCATION AT HOME, BY DISABILITY CATEGORY

| Percentage of students whose families reported: | Learning Disability | Speech/ Language Impair-ment | Mental Retarda-tion | Emotional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Ortho-pedic Impair-ment | Other Health Impair-ment | Autism | Trau-matic Brain Injury | Multiple Disa-bilities | Deaf-Blind-ness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Very high family support | 21.5 | 26.4 | 25.8 | 18.5 | 22.7 | 26.1 | 27.8 | 25.9 | 23.5 | 21.4 | 26.5 | -- |
| | (1.9) | (2.2) | (2.5) | (2.1) | (2.7) | (3.3) | (2.7) | (2.9) | (2.2) | (4.6) | (2.9) | |
| Talking with children about school regularly | 90.1 | 92.4 | 85.3 | 91.4 | 90.6 | 90.9 | 91.1 | 93.0 | 83.3 | 87.3 | 81.4 | -- |
| | (1.4) | (1.3) | (1.8) | (1.5) | (1.9) | (2.0) | (1.7) | (1.3) | (2.0) | (3.5) | (2.2) | |
| Reading to children at least three times a week | 59.3 | 68.1 | 63.6 | 53.1 | 62.1 | 66.6 | 69.2 | 63.9 | 68.7 | 65.4 | 68.3 | -- |
| | (2.1) | (2.2) | (2.3) | (2.4) | (2.8) | (3.0) | (2.4) | (2.4) | (2.5) | (4.7) | (2.5) | |
| Helping with homework five or more times a week | 56.7 | 54.5 | 56.8 | 48.4 | 53.2 | 51.1 | 57.7 | 54.6 | 55.1 | 47.6 | 62.3 | -- |
| | (2.3) | (2.5) | (2.8) | (2.8) | (3.2) | (3.8) | (3.1) | (2.6) | (3.3) | (5.5) | (3.2) | |
| Providing a quiet/appropriate place at home for homework | 96.1 | 96.0 | 96.9 | 95.1 | 96.5 | 97.1 | 97.5 | 98.0 | 97.8 | 97.4 | 97.1 | -- |
| | (.9) | (1.0) | (1.0) | (1.2) | (1.2) | (1.3) | (1.0) | (.7) | (1.0) | (1.8) | (1.1) | |
| Providing a computer at home | 60.8 | 70.4 | 50.9 | 55.5 | 67.0 | 69.1 | 71.2 | 74.7 | 79.0 | 59.7 | 55.2 | -- |
| | (2.3) | (2.3) | (2.5) | (2.6) | (3.0) | (3.2) | (2.7) | (2.2) | (2.2) | (5.2) | (2.7) | |
| Using the home computer for educational purposes | 75.3 | 75.9 | 67.2 | 70.9 | 81.5 | 66.4 | 80.8 | 78.6 | 78.1 | 78.8 | 62.6 | -- |
| | (2.5) | (2.5) | (3.4) | (3.1) | (3.0) | (4.1) | (2.8) | (2.4) | (2.6) | (5.6) | (3.4) | |
| Sample size: Family support scale | | | | | | | | | | | | |
| Helping with homework | 831 | 698 | 594 | 614 | 720 | 588 | 752 | 852 | 774 | 276 | 518 | 12 |
| Having a computer, doing activities | 852 | 710 | 725 | 699 | 750 | 651 | 829 | 909 | 1,067 | 307 | 804 | 24 |
| Using a computer for education | 534 | 509 | 364 | 395 | 513 | 426 | 591 | 703 | 835 | 189 | 494 | 15 |

Standard errors are in parentheses.

--Too few cases to report separately.

### Demographic Differences in Family Support for Learning at Home

Although there were no significant differences between boys and girls in levels of family support for learning, other characteristic of students did distinguish the levels of family support for learning that they experienced at home.

**Age.** Almost all aspects of support were lower for older students (Exhibit 3-8). Students between the ages of 6 and 9 were more likely than students who were 10 to 12 years old to talk regularly with their parents about school, to be read to by their parents, and to receive frequent help with their homework. Almost a third of students between the ages of 6 and 9 had families who were very highly supportive in all these activities, compared with 17% of those who were 10 to 12 ($p<.001$). Experiences of families of students with disabilities mirrored the experiences of families of students in the general population, among whom support for education also was lower for older students. For youth in the general population, ". . . parental involvement was greatest in the primary grades, falling off precipitously by the fifth grade" (Harvard Education Letter, 1988).

**Exhibit 3-8**
**SUPPORT FOR EDUCATION AT HOME, BY STUDENTS' AGE**

| | Age in 2000 | |
|---|---|---|
| | 6 to 9 | 10-12 |
| Percentage of students whose families reported: | | |
| Very high family support | 30.6 (1.8) | 17.1 (1.5) |
| Talking with children about school regularly | 91.5 (1.0) | 89.8 (1.1) |
| Reading to children at least three times a week | 74.8 (1.5) | 52.0 (1.8) |
| Helping with homework five or more times a week | 61.3 (1.9) | 50.3 (1.9) |
| Providing a quiet/appropriate place at home for homework | 95.6 (.8) | 97.0 (.7) |
| Providing a computer at home | 63.4 (1.8) | 64.8 (1.8) |
| Using the home computer for educational purposes | 73.0 (2.0) | 76.6 (2.0) |
| Sample size: Family support scale | | |
| Helping with homework | 3,688 | 3,346 |
| Having a computer, doing activities | 4,289 | 3,752 |
| Using a computer for education | 2,908 | 2,510 |

Standard errors are in parentheses.

However, unlike other aspects of family support, older students with disabilities were as likely as younger students to have a computer at home and to use it for education purposes.

**Household income.** There were few significant differences in family support behaviors at home for children from households of different income levels (Exhibit 3-9). One exception was the frequency with which parents reported talking with their children about school. Talking with students about school was more common among households with higher incomes; 85% of students in households with incomes of $25,000 or less had regular conversations about school with their families, whereas 96% of those with incomes of more than $50,000 regularly spoke with their families about school ($p<.001$). This difference was not enough to create a difference between income groups in the overall measure of family support. Regarding the frequency with which adults read to children in the household, students with disabilities differed from students in the general population, from lower income households, who were much less likely less likely to be read to frequently than those from higher income families (NSAF, 1999).

Not surprisingly, students from wealthier families were more likely to have a computer at home; 91% of those with household incomes of more than $50,000 had a computer at home, compared with 37% of those with incomes of $25,000 or less ($p.<.001$). Students with

disabilities from families with incomes below $25,000 were as likely as their low-income peers in the general population to have a computer at home (37% compared with 33%; U.S. Bureau of the Census, 2002). When a student with disabilities did have a computer at home, those from wealthier families were more likely to use it for educational purposes; 83% of students from households with incomes of more than $50,000 used their home computer for homework, compared with 72% of those from families with incomes between $25,000 and $50,000 ($p<.001$), and 63% of those with incomes of less than $25,000 ($p<.001$).

**Race/ethnicity.** There also were differences in the support for education at home among students with different racial/ethnic backgrounds (Exhibit 3-9). Asian and Pacific Islander students were among the least likely to come from households where talking about school,

**Exhibit 3-9**
**SUPPORT FOR EDUCATION AT HOME, BY HOUSEHOLD INCOME AND RACE/ETHNICITY**

| | Household Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| | $25,000 or less | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaskan Native |
| Percentage of students whose families reported: | | | | | | | | |
| Very high family support | 24.8 | 23.8 | 22.6 | 23.6 | 27.0 | 20.4 | 17.5 | 19.3 |
| | (2.0) | (2.0) | (2.0) | (1.4) | (2.7) | (3.2) | (10.4) | (15.2) |
| Talking with children about school regularly | 84.7 | 92.2 | 96.1 | 94.5 | 84.9 | 81.3 | 78.5 | 98.7 |
| | (1.6) | (1.3) | (.9) | (.7) | (2.1) | (3.0) | (10.3) | (4.3) |
| Reading to children at least three times a week | 61.3 | 67.9 | 62.8 | 63.0 | 66.3 | 59.7 | 48.8 | 58.3 |
| | (2.0) | (2.1) | (2.2) | (1.4) | (2.6) | (3.6) | (10.8) | (15.2) |
| Helping with homework five or more times a week | 56.5 | 55.4 | 54.0 | 54.0 | 64.9 | 50.8 | 42.6 | 58.5 |
| | (2.3) | (2.4) | (2.4) | (1.6) | (2.9) | (4.0) | (13.5) | (19.0) |
| Providing a quiet/appropriate place at home for homework | 95.5 | 95.7 | 97.3 | 96.6 | 97.7 | 93.1 | 94.3 | 100.0 |
| | (1.0) | (1.0) | (0.8) | (0.6) | (0.9) | (2.0) | (6.1) | (0.0) |
| Providing a computer at home | 37.1 | 69.8 | 90.5 | 77.0 | 41.3 | 37.8 | 74.5 | 66.0 |
| | (2.1) | (2.1) | (1.4) | (1.3) | (2.9) | (3.8) | (10.9) | (18.0) |
| Using the home computer for educational purposes | 62.6 | 72.4 | 82.9 | 77.5 | 64.5 | 65.9 | 79.6 | |
| | (3.5) | (2.5) | (1.9) | (1.5) | (4.6) | (5.8) | (11.5) | -- |
| Sample size: Family support scale | | | | | | | | |
| Helping with homework | 2,457 | 2,081 | 2,348 | 4,523 | 1,545 | 912 | 135 | 38 |
| Having a computer, doing activities | 2,845 | 2,387 | 2,702 | 5,254 | 1,744 | 1,029 | 170 | 42 |
| Using a computer for education | 1,130 | 1,692 | 2,475 | 4,144 | 745 | 465 | 143 | 25 |

Standard errors are in parentheses.

reading to children, and helping with homework were frequent activities, resulting in the lowest overall measure of family support (differences were not always statistically significant because of the small number of students in this group). In contrast, Asian and Pacific Islander students were among the most likely to have a computer at home and to use it for educational purposes. African American students were the most likely to have very high family support at home, largely because they were the most likely to be read to often and helped with homework. However, Native American and white children were the most likely to have parents who regularly talked with them about school.

There were marked variations in computer access and use between racial/ethnic groups, reflecting, in part, their differences in average economic status. Only 38% of Hispanic students and 41% of African American students had a computer at home, compared with 74% of Asian and Pacific Islander students ($p.<.01$) and 77% of white students ($p<.001$). This variation by racial/ethnic category is similar to the experiences of students in the general population. Only 37% of Hispanic and African American students in the general population lived in households with computers, compared with 77% of white and 72% of Asian and Pacific Islander students in the general population (U.S. Bureau of the Census, 2002). However, even when Hispanic and African American students with disabilities had a computer in their home, they were less likely to use it for educational purposes than others.

**Demands on parents.** In addition to the demographic characteristics discussed above, we also examined several aspects of families that might be expected to impact families' time or ability to be involved at home in an effort to distinguish those who provided high levels of family support from others. Having fewer adults in the household, having more children in the household, and having other children with a disability all might limit adult time to invest in education supports at home. Nevertheless, none of these factors were related to levels of family support, nor was having a mother who worked full time outside of the home. Families were able to provide support for student learning at home, despite these potential limitations on time to do so.

### Other Factors Related to Differences in Family Support

Although one might expect that active parent support for student learning at home might in some ways reflect high aspirations for students' later educational attainment and parents' willingness to do what they could to help students' meet those expectations, the level of family support was not significantly related to parents' expectations for high school graduation or postsecondary education enrollment or graduation.

Training and family programs were factors related to higher family support that did not involve the disability or demographic characteristics of students or households. Parents who attended trainings or programs for families of children with disabilities provided higher levels of support. These types of activities can inform parents about how to create a home environment that supports school learning. They also can provide social support for doing so through reinforcement from other parents. Almost 28% of students with disabilities had parents who reported they had participated in a program or training for families of students with disabilities. Some of these kinds of programs are provided through OSEP-funded Parent Training and Information Centers (PTICs) in every state. Almost 40% of the parents who attended trainings reported that they had participated in a training sponsored by a PTIC. Parents who attended

programs or trainings for families of students with disabilities were more likely to provide very high family support than were those who had not attended such programs or trainings (30% vs. 21%; $p<.01$, Exhibit 3-10). Of those who had attended trainings, parents who had participated in PTIC trainings or programs were more likely to provide very high support for learning at home than were those who attended other types of programs (37% vs. 26%; $p<.05$).

**Exhibit 3-10**
**PARENT PROGRAMS AND TRAINING**

| | Percentage with Very High Family Support | Standard Error |
|---|---|---|
| Participated in a program or training for families of students with disabilities | | |
| Yes | 29.8 | 2.3 |
| No | 21.2 | 1.3 |
| Sample size=7,112 | | |
| Participant who attended a program or training sponsored by a PTIC | | |
| Yes | 37.3 | 4.0 |
| No | 26.4 | 2.9 |
| Sample size=2,569 | | |

## Household Rules

Providing and consistently applying rules at home regarding homework, household chores, bed times, and watching TV can be an effective method for families to support students' learning. Students who were subject to such rules and expectations have been shown to perform consistently better in school (Henderson and Berla, 1994; Clark, 1990). Exhibit 3-11 reveals the extent to which families established rules regarding school work, and behaviors at home, such as watching television, doing chores, and bedtimes.

Parents of virtually all students with disabilities (97%) who received homework reported having family rules regarding doing homework, but fewer than half of those who received grades (46%) had rules regarding achieving a certain grade point average in school. Almost all students (96%) had rules regarding a specific bed time, and 90% were expected to help with household chores. Students with disabilities were similar to their peers in the general population in that 97% of elementary school-aged children had rules about bedtime (NCES, 1998b).

Having rules regarding television-watching can be particularly important, because children who watch many hours of television often have less time for homework and other healthier alternatives, such as interacting with peers and developing athletic, artistic, or other skills. The American Academy of Pediatrics (2002) encourages parents to limit television-watching to no more than two hours a day. Approximately three-fourths (78%) of students with disabilities lived in families who reportedly limited the amount of time they spent watching television. Even more (90%) had parents who reported restricting the types of television shows they could watch. This was similar to their elementary school-aged peers in the general population, among whom 80% had parents who set limits on television-watching, and 92% had rules about the types of programs they could watch (NCES, 1998b).

**Exhibit 3-11**
**PREVALENCE OF HOUSEHOLD RULES**

| | Percentage | Standard Error | Sample Size |
|---|---|---|---|
| Students whose families reported having rules about: | | | |
| Doing homework | 97.0 | 0.5 | 7,284 |
| Getting a certain GPA | 45.8 | 1.3 | 7,406 |
| Amount of TV watched | 78.5 | 1.1 | 8,019 |
| Types of TV programs watched | 90.2 | 0.8 | 8,040 |
| Bed time | 96.1 | 0.5 | 8,228 |
| Doing household chores | 89.6 | 0.8 | 8,056 |
| Students whose families reported number of rules as: | | | 6,609 |
| Six | 35.8 | 1.3 | |
| Five | 40.6 | 1.4 | |
| Four or fewer | 23.6 | 1.2 | |

To examine the broader notion of families setting rules or guidelines to support learning, we summed the number of kinds of rules families reported having at home (scores ranged from 0 to 6; only those who responded to all six of the rules questions were included). More than one third of students with disabilities reportedly were expected to abide by all of these rules, more than 40% had five rules, and fewer than one-fourth lived in families who maintained four or fewer rules.

The extent to which families set rules for students' activities at home was positively related to the extent to which they provided other forms of family support at home. A modest correlation ($r = .19$, $p<.001$) between the family support scale score and the number of kinds of rules reported by families reveals that families who were likely to talk with students frequently about school, read to them often, and help frequently with homework also were somewhat more likely to establish a more comprehensive set of rules regarding other activities at home. Correlations between family rules and parents' expectations for future educational attainment, although statistically significant, were small and, somewhat surprisingly, negative ($r = -.06$ to $-.11$, $p<.001$). Perhaps parents held higher expectations for more academically competent students who they believed were less in need of a comprehensive set of rules to support learning at home.

### Disability Category Differences in Household Rules

For most disability categories, between 32% and 40% of students were subject to all six kinds of rules we investigated (Exhibit 3-12); only students with autism and other health impairments were less often subject to all rules. Students with autism were subject to the fewest rules.

Overall, students in most disability categories encountered similar rules when they were at home. The exception was students with deaf-blindness, who were among the least likely to be subject to each kind of rule. Parents' rules regarding the grades students were expected to achieve showed the greatest variation by disability category. Students with serious emotional disturbances were the most likely to have parents who set this type of rule (52%), whereas students with other health impairments, deaf-blindness, multiple disabilities, and autism were the least likely to have rules about acceptable grades (16% to 35%). Students with disabilities that affected their physical abilities, those with orthopedic or other health impairments, or multiple disabilities, were less likely than their peers to be expected to help with household chores.

## Exhibit 3-12
## HOUSEHOLD RULES, BY DISABILITY CATEGORY

| | Learning Disability | Speech/ Language Impair-ment | Mental Retarda-tion | Emotional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Ortho-pedic Impair-ment | Other Health Impair-ment | Autism | Trau-matic Brain Injury | Multiple Disabil-ities | Deaf-Blind-ness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage whose families reported having rules about: | | | | | | | | | | | | |
| Doing homework | 97.4 | 97.3 | 94.0 | 97.7 | 97.6 | 95.3 | 96.3 | 97.3 | 91.5 | 96.0 | 94.0 | -- |
| | (.7) | (.8) | (1.3) | (.8) | (1.0) | (1.6) | (1.2) | (.8) | (1.8) | (2.1) | (1.6) | |
| Getting a certain GPA | 46.5 | 48.2 | 44.7 | 52.3 | 40.3 | 41.3 | 41.8 | 35.4 | 15.8 | 41.0 | 34.8 | -- |
| | (2.4) | (2.6) | (2.7) | (2.6) | (3.2) | (3.7) | (3.1) | (2.5) | (2.3) | (5.6) | (3.0) | |
| Doing household chores | 91.5 | 89.8 | 85.8 | 92.1 | 88.0 | 85.6 | 78.8 | 90.4 | 76.9 | 82.4 | 74.5 | -- |
| | (1.3) | (1.5) | (1.8) | (1.4) | (2.1) | (2.5) | (2.4) | (1.5) | (2.3) | (4.1) | (2.6) | |
| Time to go to bed | 94.9 | 97.4 | 95.1 | 97.8 | 97.5 | 96.0 | 97.2 | 96.9 | 95.4 | 96.8 | 95.6 | -- |
| | (1.0) | (.8) | (1.1) | (.8) | (1.0) | (1.4) | (1.0) | (.9) | (1.1) | (1.9) | (1.2) | |
| Amount of TV watched | 77.3 | 81.1 | 78.1 | 77.4 | 79.2 | 79.6 | 77.8 | 75.6 | 73.8 | 80.4 | 76.6 | -- |
| | (2.0) | (2.0) | (2.1) | (2.2) | (2.6) | (2.9) | (2.5) | (2.2) | (2.5) | (4.3) | (2.4) | |
| Types of TV shows watched | 89.2 | 92.0 | 89.4 | 87.9 | 92.2 | 88.6 | 90.9 | 91.3 | 89.0 | 91.2 | 88.9 | -- |
| | (1.4) | (1.4) | (1.6) | (1.7) | (1.7) | (2.3) | (1.7) | (1.4) | (1.7) | (3.1) | (1.8) | |
| Percentage whose families reported number of rules as: | | | | | | | | | | | | |
| Six | 34.6 | 38.5 | 40.4 | 37.1 | 32.6 | 34.7 | 32.1 | 28.3 | 12.1 | 32.1 | 31.5 | -- |
| | (2.3) | (2.6) | (2.7) | (2.8) | (3.0) | (3.8) | (3.0) | (2.4) | (2.4) | (5.4) | (3.4) | |
| Five | 41.0 | 40.2 | 37.6 | 36.4 | 42.3 | 43.0 | 41.2 | 45.6 | 53.0 | 47.4 | 42.0 | -- |
| | (2.4) | (2.6) | (2.7) | (2.8) | (3.2) | (3.9) | (3.2) | (2.7) | (3.6) | (5.7) | (3.6) | |
| Four or fewer | 24.4 | 21.2 | 22.0 | 26.5 | 25.0 | 22.2 | 26.8 | 26.0 | 34.9 | 20.5 | 26.5 | -- |
| | (2.1) | (2.2) | (2.3) | (2.6) | (2.8) | (3.3) | (2.9) | (2.4) | (3.5) | (4.6) | (3.2) | |
| Sample size: Rules about homework | 835 | 701 | 604 | 627 | 728 | 591 | 754 | 857 | 780 | 279 | 515 | 13 |
| Rules about grades | 807 | 662 | 651 | 673 | 715 | 600 | 736 | 851 | 837 | 273 | 584 | 17 |
| Rules about chores/bedtime/TV | 850 | 707 | 713 | 698 | 747 | 631 | 781 | 895 | 1024 | 299 | 691 | 20 |
| Rules scale | 784 | 647 | 602 | 553 | 689 | 530 | 674 | 797 | 646 | 250 | 429 | 8 |

Standard errors are in parentheses.
-- Too few cases to report separately.

### Demographic Differences in Household Rules

Although boys and girls did not differ in the number or types of rules they were reported to encounter at home, family rules did differ for students on the basis of several other characteristics.

**Age.** As children age, they typically take on greater responsibility and act with greater independence, which could be reflected in the kind or number of rules parents establish for them.

**Exhibit 3-13**
**HOUSEHOLD RULES, BY STUDENTS' AGE**

| | Age in 2000 | |
|---|---|---|
| | 6 to 9 | 10-12 |
| Percentage whose families reported having rules about: | | |
| Doing homework | 96.9 (.7) | 97.3 (.6) |
| Doing household chores | 87.3 (1.2) | 91.8 (1.0) |
| Getting a certain GPA | 40.2 (1.9) | 50.6 (1.9) |
| Time to go to bed | 97.2 (.6) | 95.1 (.8) |
| Amount of TV watched | 79.6 (1.5) | 77.3 (1.6) |
| Types of TV shows watched | 91.9 (1.0) | 88.6 (1.2) |
| Percentage whose families reported number of rules as: | | |
| Six | 32.4 (1.9) | 38.4 (1.9) |
| Five | 43.5 (.7) | 38.6 (.6) |
| Four or fewer | 24.1 (.7) | 23.1 (.6) |
| Sample size: Rules about homework | 3,706 | 3,382 |
| Rules about grades | 3716 | 3475 |
| Rules about chores/bedtime/TV | 4158 | 3656 |
| Rules scale | 3,264 | 3,155 |

Standard errors are in parentheses.

Consistent with this expectation, the proportion of students subject to all kinds of household rules was higher for older than for younger students (e.g., 38% for those ages 10 to 12 vs. 32% for those ages 6 to 9, $p<.05$; Exhibit 3-13). Younger students with disabilities also encountered a somewhat different set of family rules than their older peers. Those who were between 6 and 9 years old were more likely to face rules about bedtimes and the amount and type of TV shows they watched than students who were ages 10 to 12 ($p<.05$ for all comparisons). At the same time, they were less likely to be expected to participate in household chores or receive a certain GPA ($p<.01$ for both comparisons).

**Household income.** Wealthier students were less likely than lower income students to be subject to all of the kinds of household rules (e.g., 30% and 32% of those in the two upper-income groups, compared with 43% of those from households with incomes of $25,000 or less, $p<.001$; Exhibit 3-14). Students from wealthier families were as likely to be expected to do homework, have a bed time, do household chores, and limit the amount of television they watched as were their peers from poorer families. However, they were more likely to face rules regarding the types of TV shows they watched (93% vs. 89%; $p<.05$) and less likely to have rules regarding the need to attain a certain GPA (40% and 41% vs. 54%; $p<.001$).

**Racial/ethnic background.** White students were less likely than students from most other racial/ethnic backgrounds to be subject to all the kinds of rules investigated here, for example,

**Exhibit 3-14**
**HOUSEHOLD RULES, BY INCOME AND RACE/ETHNICITY**

| | Household Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| | $25,000 or less | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaskan Native |
| Percentage whose families reported having rules regarding: | | | | | | | | |
| Doing homework | 96.3 | 97.2 | 97.4 | 97.5 | 97.2 | 94.3 | 90.4 | 97.1 |
| | (.9) | (.8) | (.8) | (.5) | (1.0) | (1.9) | (7.8) | (6.4) |
| Doing household chores | 90.2 | 89.4 | 89.8 | 90.6 | 91.6 | 84.5 | 62.8 | 93.6 |
| | (1.3) | (1.4) | (1.4) | (.9) | (1.7) | (2.8) | (12.2) | (9.3) |
| Getting a certain GPA | 54.1 | 40.3 | 41.0 | 37.3 | 65.2 | 53.3 | 69.4 | 69.2 |
| | (2.3) | (2.4) | (2.4) | (1.6) | (2.9) | (4.0) | (12.3) | (18.2) |
| Time to go to bed | 96.2 | 95.6 | 96.7 | 96.7 | 96.1 | 93.0 | 92.7 | 98.2 |
| | (.9) | (1.0) | (.8) | (.6) | (1.2) | (2.0) | (6.5) | (5.1) |
| Amount of TV watched | 79.1 | 77.0 | 78.8 | 76.8 | 83.2 | 80.0 | 90.0 | 84.3 |
| | (1.8) | (2.0) | (2.0) | (1.3) | (2.2) | (3.1) | (7.6) | (13.8) |
| Types of TV shows watched | 89.0 | 89.0 | 92.7 | 91.7 | 89.0 | 85.9 | 93.6 | 79.3 |
| | (1.4) | (1.5) | (1.2) | (.9) | (1.9) | (2.7) | (6.2) | (15.4) |
| Percentage whose families reported number of rules as: | | | | | | | | |
| High (6) | 43.3 | 32.0 | 30.5 | 29.0 | 52.1 | 40.9 | 42.8 | 47.4 |
| | (2.4) | (2.3) | (2.3) | (1.5) | (3.2) | (4.0) | (13.6) | (19.9) |
| Medium (5) | 35.3 | 40.8 | 46.7 | 45.4 | 32.1 | 33.9 | 24.6 | 43.2 |
| | (2.3) | (2.5) | (2.5) | (1.7) | (3.0) | (3.9) | (11.8) | (19.7) |
| Low (0 to 4) | 21.4 | 27.3 | 22.8 | 25.5 | 15.8 | 25.3 | 32.6 | 9.4 |
| | (2.0) | (2.2) | (2.1) | (1.5) | (2.3) | (3.6) | (12.8) | (11.6) |
| Sample size: Rules about homework | 2,480 | 2,091 | 2,369 | 4,552 | 1,561 | 921 | 137 | 38 |
| Rules about grades | 2,593 | 2,127 | 2,342 | 4,624 | 1,575 | 955 | 133 | 38 |
| Rules about chores/bedtime/TV | 2,770 | 2,318 | 2,597 | 5,075 | 1,691 | 1,001 | 161 | 42 |
| Rules scale | 2,286 | 1,896 | 2,119 | 4,098 | 1,438 | 858 | 111 | 34 |

compared with African American and Hispanic students (29% vs. 52% and 41%; $p<.001$ and .05). White students were most likely to have five of the six kinds of rules, and were least likely to be subject to rules about grade point average (37% vs. 53% to 69% for other students). In contrast, African American students were the mostly likely to be subject to all six kinds of rules (52%). Asian and Pacific Islander students were less likely than most other students to have rules regarding household chores (63% vs. 91% for white students, for example, $p<.05$).

## Summary

This chapter has examined family expectations for students' future educational attainment and the kinds of supports they provide at home to help students meet those expectations. Overall, we see both high expectations and high levels of support for many students.

For example, 92% of parents expected their children "definitely" or "probably" to graduate from high school with a regular diploma, and more than three-fourths were expected "definitely" or "probably" to go on to postsecondary education after high school. Sadly, the evidence suggests that these expectations greatly exceed the rate at which students with disabilities actually graduate from high school (57%) or attend postsecondary school (14%) (NLTS, 1990).

A majority of elementary and middle school students with disabilities received a high degree of support for education at home. For example, 90% of students were reported to have conversations with family members about school "regularly," and almost two-thirds were read to by family members at least three times a week. More than half of parents reported helping with homework five or more times a week, a substantially higher rate of this level of homework help than occurred for students in the general population.

However, not all students were held to the same high expectations, nor did all receive high levels of support at home. Expectations for educational attainment were highest for students with learning, speech, orthopedic, sensory, or other health impairments and lowest for those with emotional, cognitive, or multiple disabilities. Students with emotional disturbances also received the lowest level of support of several kinds at home.

Age differences in expectations and family support were quite apparent, favoring younger students. For example, there is some evidence that as students grew older, parents' expectations were lowered, perhaps becoming more closely aligned with the reality of students' academic achievements. Family support of almost all kinds also was lower for older students, with the exception of having a computer at home and using it for educational purposes. Reductions in family involvement in education as students age also is apparent in the general student population.

The influence of income differences was notable regarding both parent expectations and some forms of family supports for learning. Poorer students generally were subject to lower expectations for educational attainment with regard both to high school completion and postsecondary education. They also were less likely to engage in regular conversations about school at home or to have a computer at home; among those who did have a home computer, students from lower-income households were less likely to use it for schoolwork than wealthier students.

There was no consistent pattern of differences between racial/ethnic groups regarding parent expectations and family supports. For example, white students were more likely than African American or Hispanic students to be expected to graduate from high school, but were not markedly more likely to be expected to go on to postsecondary education after high school. African American students were the most likely to be read to frequently at home and helped with homework, although they were less likely than white or Asian/Pacific Islander students to have a computer at home or to use one for educational purposes if they had it.

Other demographic factors that might be expected to limit parents' time for home support of students' learning—such as full-time employment, other child(ren) with a disability, or single parenthood—were unrelated to the levels of support provided. This suggests that, even with these potential limitations on time, parents were able to support their children's learning. One factor that did relate to variations in family support was participation in parent trainings or other programs for parents of children with disabilities. Participants in these kinds of programs,

particularly those sponsored by OSEP-funded Parent Training and Information Centers (PTICs), gave significantly greater support for learning at home than did nonparticipants or those who participated in programs sponsored by other organizations.

Now that a clearer picture has been drawn of parent expectations and family supports for education for elementary and middle school students with disabilities, the question is, "what difference do they make?" Upcoming analyses from Wave 1 of SEELS will examine the question of whether higher expectations for educational attainment or higher levels of family support for learning at home are associated with higher levels of academic performance. Longitudinal analyses of future waves of SEELS data will enable us to examine the ways in which expectations and support change over time as students age and the relative effects of those changes on student achievements.

# 4. STUDENTS' INTERACTIONS WITH FRIENDS

**By Tom W. Cadwallader and Mary Wagner**

Students' social activities outside of the classroom are crucial to their development. Their social interactions with peers, friends, parents, siblings, relatives, and others play a key role in the dynamic process of children's social adaptation and change (Bronfenbrenner, 1979). In particular, relations with peers have been strongly linked to the social adjustment of children and adolescents (Asher & Coie, 1990; Bukowski, Newcomb, and Hartup, 1996; Parker & Asher, 1987).

Peer interchanges differ in important ways from exchanges with parents, teachers, and other adults. Children must negotiate and compromise with age-mates, in contrast with the more unidirectional interactions that tend to occur between children and adults (Youniss, 1980). Successful peer relations can support prosocial behavior and indicate typical development, whereas rejection by or isolation from peers can indicate risk for future maladjustment (Coie, 1990; Dodge, 1990; Parker & Asher, 1987). Of course, there are many shades of gray between having successful friendships and being rejected by one's peers. Not all "popular" children have close personal friends, and not all "rejected" children are friendless (Cairns et al., 1988; Cadwallader, 2000).

Several dimensions come into play in understanding the role of friendships in children's lives, including the number of friends, their age and gender, and the quality and stability of the relationships. Friendships often are fluid and short-lived for children in elementary and early middle school (Neckerman, 1992). As children age, their feelings, beliefs, expectations, and attitudes can change, and friendships can grow and change accordingly. Throughout this process, children appear to benefit from the opportunity to experience a variety of relationships, and having multiple contexts for social interaction is a central feature of positive social development.

Although having friends may be crucial to the healthy development of all children, some kinds of disabilities can be challenges to making and interacting with friends. For example, a hearing impairment can limit interactions with children who cannot use the communication mechanism of a hearing impaired child. A visual impairment could limit the kinds of activities a student can engage in with friends. Autism and some kinds of behavioral disabilities are challenges to the very notion of interaction itself.

To understand the friendships of elementary and middle school students with disabilities, we asked parents of SEELS students to report how often children interacted with friends by getting together with them in person outside of school, receiving telephone calls from them, and being invited to other children's social activities. Parents also reported whether students used the Internet to communicate with others through chat rooms or email.

## Interactions with Friends

Most students with disabilities had regular contact with friends in a variety of ways (Exhibit 4-1). More than 90% of students visited with friends outside of school "occasionally" (one to four times a week) or "frequently" (more than four times a week) and a similar percentage had received an invitation to other children's social activities in the preceding year.

About two-thirds received calls from friends "occasionally" (one or more times a month) or "frequently" (several times a week). The worldwide growth in computer use was reflected in the households of students with disabilities, 64% of which were reported to have a computer at home. Nearly a quarter of the students who had a home computer were reported to use email or World Wide Web chat rooms.

**Exhibit 4-1**
**STUDENTS' INTERACTIONS WITH FRIENDS**

| Percentage of students who: | Percentage | Standard Error | Sample Size |
|---|---|---|---|
| Visited with friends: | | | 8,333 |
| Never | 9.3 | .8 | |
| Occasionally (fewer than four times a week) | 64.9 | 1.2 | |
| Frequently (four or more times a week) | 25.8 | 1.1 | |
| Received telephone calls from friends: | | | 8,327 |
| Rarely (less than once a month) or never | 32.9 | 1.2 | |
| Occasionally (one or more times monthly) | 31.8 | 1.2 | |
| Frequently (several times a week) | 35.4 | 1.2 | |
| Had been invited to another child's social activity | 89.7 | .7 | 9,364 |
| Interacted with others through email or chat rooms | 22.5 | 1.3 | 5,550 |
| Participated in none of these interactions with individual friends | 1.1 | .2 | 8,336 |

Despite these high levels of interactions, some students were on the margins of their peer networks. About 10% of students never visited with friends outside of school and had not been invited to other children's social activities in the preceding year. Almost one-third "rarely" (less than once a month) or "never" received telephone calls from friends. One percent of parents reported that their children did not have any of these forms of interaction with individual friends—they never visited with friends outside of school, never received a phone call from a friend, were not invited to other children's social activities, and did not use email or chat rooms to communicate. It is important to note that, although these are common forms of interaction with individual friends, they are not an exhaustive set of potential friendship interactions, and students who did not participate in these activities may have had other opportunities for interaction with peers in class or in extracurricular activities (see Chapter 5).

It is reasonable to assume that students with active individual friendships would interact in multiple ways: they would both talk on the phone and get together outside of class, for example. Analyses provide some support for this expectation. The correlations between the forms of interaction we have examined all are positive, indicating that they vary together to some extent. The magnitude of correlations were statistically significant, but moderate in size, ranging from .27 to .32 ($p<.01$ and $p<.001$ across the relationships).

### Disability Category Differences in Interactions with Friends

Differences in the kinds and levels of interactions with friends were apparent for students who differed in their primary disability category (Exhibit 4-2). For example, the proportion of students who saw friends outside of class "frequently" ranged from 2% to 28% of students.

## Exhibit 4-2
## INTERACTIONS WITH FRIENDS, BY DISABILITY CATEGORY

| Percentage who: | Learning Disability | Speech/ Language Impair-ment | Mental Retard-ation | Emot-ional Disturb-ance | Hearing Impair-ment | Visual Impair-ment | Ortho-pedic Impair-ment | Other Health Impair-ment | Autism | Trau-matic Brain Injury | Multiple Disabili-ties | Deaf-Blind-ness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Visited with friends: | | | | | | | | | | | | |
| Never | 7.5 (1.2) | 7.4 (1.3) | 17.3 (1.9) | 10.3 (1.6) | 8.9 (1.8) | 14.9 (2.5) | 12.0 (1.9) | 6.7 (1.3) | 32.3 (2.5) | 12.7 (3.5) | 21.3 (2.2) | -- |
| Occasionally (fewer than four times a week) | 64.1 (2.2) | 66.7 (2.4) | 61.2 (2.5) | 63.6 (2.5) | 70.0 (2.9) | 70.6 (3.1) | 69.9 (2.7) | 67.2 (2.4) | 59.4 (2.6) | 62.3 (5.1) | 60.9 (2.7) | -- |
| Frequently (four or more times a week) | 28.4 (2.1) | 25.9 (2.2) | 21.5 (2.1) | 26.2 (2.3) | 21.0 (2.6) | 14.5 (2.4) | 18.1 (2.3) | 26.1 (2.2) | 8.3 (1.5) | 25.0 (4.6) | 17.8 (2.1) | -- |
| Received telephone calls from friends: | | | | | | | | | | | | |
| Rarely or never (less than once a month) | 25.2 (2.0) | 30.4 (2.3) | 50.1 (2.5) | 41.5 (2.5) | 48.7 (3.2) | 38.3 (3.4) | 40.7 (2.9) | 32.7 (2.4) | 81.0 (2.1) | 33.0 (5.0) | 64.3 (2.6) | -- |
| Occasionally (one or more times a month) | 29.5 (2.1) | 39.2 (2.5) | 24.1 (2.2) | 27.7 (2.3) | 26.6 (2.8) | 32.8 (3.2) | 33.4 (2.8) | 32.1 (2.4) | 11.8 (1.7) | 37.8 (5.2) | 20.5 (2.2) | -- |
| Frequently (several times a week) | 45.2 (2.3) | 30.4 (2.3) | 25.8 (2.2) | 30.8 (2.4) | 24.7 (2.7) | 28.9 (3.1) | 25.9 (2.6) | 35.2 (2.4) | 7.2 (1.4) | 29.2 (4.8) | 15.2 (2.0) | -- |
| Had been invited to other children's social activities | 91.5 (1.2) | 93.6 (1.2) | 79.6 (1.9) | 81.5 (1.8) | 90.9 (1.6) | 85.7 (2.2) | 85.8 (1.9) | 90.3 (1.5) | 68.1 (2.5) | 85.1 (3.5) | 73.8 (2.4) | -- |
| Interacted with others through email or chat rooms | 26.6 (2.6) | 21.9 (2.5) | 10.4 (2.2) | 19.4 (2.7) | 29.4 (3.5) | 22.6 (3.7) | 22.2 (2.9) | 23.6 (2.4) | 9.1 (1.8) | 16.3 (5.0) | 9.3 (2.1) | -- |
| Participated in none of these interactions with individual friends | .1 (.2) | .5 (.3) | 3.1 (.9) | 2.1 (.7) | .8 (.5) | 2.3 (1.0) | 2.3 (.8) | 2.0 (.7) | 11.8 (1.6) | 2.9 (1.7) | 6.0 (1.3) | -- |
| Sample size: Interactions | 847 | 708 | 727 | 706 | 751 | 648 | 827 | 910 | 1,064 | 305 | 813 | 21 |
| Computer users | 527 | 509 | 364 | 393 | 514 | 426 | 588 | 701 | 834 | 188 | 492 | 14 |

--Too few cases to report separately.
Standard errors are in parentheses.

Receiving telephone calls "frequently" varied even more widely, from no students among those with deaf-blindness to 45% of students with learning disabilities. The proportion of students who engaged in none of the friendship interactions we investigated ranged from less than 1% to more than one-fourth of students in different disability groups.

Overall, students with learning disabilities and speech/language impairments were the most socially active. They had the highest rates of participation, and most students in these categories (99.9% and 99.5%, respectively) were reported to participate in at least one of the friendship activities examined here. Students with emotional disturbances and other health impairments also participated actively with friends; 98% joined friends in some activity. . Students with hearing impairments were among the most likely to be invited to other children's social activities and to intereact with others by computer, and very few (.8%) were identified as isolates (i.e., did not participate in any friendship activity).

In contrast, more than one in five students with multiple disabilities and about one-third of students with autism or deaf-blindness "never" interacted with friends outside of class. Between 64% and 86% of students in those categories "rarely" or "never" received telephone calls, as did about half of students with mental retardation or hearing impairments. Yet, more than half of students with deaf-blindness had been invited to other children's social events, as had two-thirds of students with autism and almost three-fourths of students with multiple disabilities. Twelve percent of students with autism had none of the forms of friendship interaction addressed here, nor did more than one-fourth of students with deaf-blindness.

### Demographic Differences in Interactions with Friends

Disabilities were not the only factors that differentiated the kinds and levels of students' friendships.

**Age.** Older and younger students differed in their friendship interactions on some dimensions (Exhibit 4-3). There were no significant differences between age groups in the frequency with which they were reported to spend time with friends outside of class or in the extent to which they participated in none of the social interactions examined here. However, the frequency of receiving telephone calls from friends was significantly higher among older students; slightly more than a quarter of students ages 6 to 9 "frequently" received a call from a friend, compared with almost half of students ages 10 or older ($p<.001$). Computer use for communication also was more common among older students (14% among students ages 6 to 9 and 30% among those ages 10 to 12, $p<.001$). This pattern of expanded interactions among older students is consistent with findings for the general student population (Brown, 1990; Csikszentmihalyi & Larson, 1984).

**Exhibit 4-3**
**INTERACTIONS WITH FRIENDS, BY AGE AND GENDER**

| Percentage who: | Age | | Gender | |
|---|---|---|---|---|
| | 6 to 9 | 10 to 12 | Male | Female |
| Visited with friends: | | | | |
| Never | 8.9 (1.0) | 9.6 (1.1) | 8.7 (.9) | 10.4 (1.4) |
| Occasionally (fewer than four times a week) | 64.9 (1.8) | 65.2 (1.8) | 63.0 (1.5) | 68.5 (2.1) |
| Frequently (four or more times a week) | 26.2 (1.6) | 25.3 (1.6) | 28.2 (1.4) | 21.0 (1.8) |
| Received telephone calls from friends: | | | | |
| Rarely (less than once a month) or never | 42.2 (1.8) | 24.0 (1.6) | 35.0 (1.5) | 28.4 (2.0) |
| Occasionally (one or more times a month) | 34.0 (1.7) | 30.2 (1.7) | 32.9 (1.5) | 29.7 (2.1) |
| Frequently (several times a week) | 23.8 (1.6) | 45.8 (1.9) | 32.1 (1.5) | 41.9 (2.2) |
| Had been invited to other children's social activities | 90.8 (1.0) | 89.0 (1.1) | 90.0 (.9) | 89.6 (1.3) |
| Used email or chat rooms | 14.5 (1.6) | 30.0 (2.1) | 21.1 (1.6) | 25.2 (2.4) |
| Participated in none of these interactions with individual friends | 1.1 (.3) | 1.1 (.3) | 1.3 (.4) | .7 (.4) |
| Sample size: | 4,323 2,900 | 3,770 2,500 | 5,528 3,690 | 2,799 1,860 |

**Gender.** There were some differences between boys and girls in the forms of social interactions in which they participated most actively (Exhibit 4-3). Boys were more likely than girls to visit with friends "frequently" (28% vs. 21%, $p<.01$). In contrast, parents said that more girls than boys frequently received telephone calls from friends (42% vs. 32%, $p<.001$). These differences between boys and girls in their preferred method of interaction are consistent with other research on childhood and adolescent peer interactions (Douvan & Adelson, 1966; Xie, Cairns, & Cairns, 2001). There was little difference in the frequency with which girls and boys were invited to other children's social activities or participated in none of the social interactions described here.

**Household income.** Although some of the forms of social interaction examined for students with disabilities would not seem to be sensitive to income differences, such as seeing friends outside of school, most of the interactions did occur more frequently among higher-income students (Exhibit 4-4). For example, the proportion of students who "never" visited with friends was smallest for the highest-income group (5% vs. 13% for the lowest-income group; $p< .01$). Similar differences were observed in the proportion of students who "rarely" or "never" received phone calls from friends (fewer than 25% of students in the highest-income group, compared with 40% in the lowest-income group, $p<.001$). Invitations to social activities also were more common among higher-income students, as was use of a home computer for email or chat room conversations among students who had one. These findings suggest that financial well-being may provide access to the multiple contexts for interaction described earlier as a central feature of positive social development.

**Exhibit 4-4**
**INTERACTIONS WITH FRIENDS, BY HOUSEHOLD INCOME AND RACE/ETHNICITY**

| | Household Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| Percentage who: | $25,000 or less | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaskan Native |
| Visited with friends: | | | | | | | | |
| Never | 13.1 | 7.4 | 5.2 | 6.5 | 10.3 | 20.6 | 6.2 | 11.6 |
| | (1.5) | (1.2) | (1.0) | (.8) | (1.8) | (3.1) | (6.1) | (12.1) |
| Occasionally (fewer than four times a week) | 61.9 | 68.0 | 66.6 | 64.4 | 68.0 | 63.8 | 81.2 | 35.4 |
| | (2.1) | (2.2) | (2.2) | (1.5) | (2.8) | (3.7) | (9.8) | (18.1) |
| Frequently (four or more times a week) | 25.0 | 24.6 | 28.2 | 29.1 | 21.7 | 15.6 | 12.6 | 53.0 |
| | (1.9) | (2.0) | (2.1) | (1.4) | (2.5) | (2.8) | (8.3) | (18.9) |
| Received telephone calls from friends: | | | | | | | | |
| Rarely or never (less than once a month) | 39.7 | 31.8 | 24.9 | 28.7 | 38.9 | 42.2 | 50.2 | 17.9 |
| | (2.2) | (2.2) | (2.0) | (1.4) | (2.9) | (3.8) | (12.6) | (14.5) |
| Occasionally (one or more times a month) | 28.3 | 30.3 | 37.6 | 33.2 | 31.1 | 26.6 | 33.6 | 31.0 |
| | (2.0) | (2.1) | (2.3) | (1.5) | (2.8) | (3.4) | (11.9) | (17.5) |
| Frequently (several times a week) | 32.0 | 37.9 | 37.5 | 38.1 | 30.0 | 31.2 | 16.2 | 51.0 |
| | (2.1) | (2.3) | (2.3) | (1.5) | (2.7) | (3.6) | (9.3) | (18.9) |
| Had been invited to other children's social activities | 83.8 | 92.6 | 94.0 | 91.1 | 88.9 | 83.2 | 94.1 | 85.7 |
| | (1.5) | (1.2) | (1.1) | (.8) | (1.8) | (2.7) | (5.2) | (10.8) |
| Used email or chat rooms | 15.7 | 22.2 | 25.9 | 24.0 | 12.5 | 20.0 | 45.3 | -- |
| | (2.6) | (2.3) | (2.2) | (1.5) | (3.2) | (4.9) | (13.8) | |
| Participated in none of these interactions with individual friends | .8 | 1.2 | 1.5 | 1.4 | .4 | .8 | 2.3 | 2.8 |
| | (.4) | (.5) | (.6) | (.4) | (.4) | (.7) | (3.7) | (6.3) |
| Sample size: All students | 2,852 | 2,388 | 2,702 | 5,257 | 1,744 | 1,029 | 166 | 43 |
| Computer users | 1,123 | 1,693 | 2,474 | 4,131 | 741 | 464 | 143 | 25 |

**Race/ethnicity.** Ethnic, racial, and cultural differences in friendship interactions were evident among students with disabilities (Exhibit 4-4). For example, white students were significantly more likely than most other students to see friends and receive telephone calls from them "frequently" (e.g., $p<.01$ compared with African American students). Even higher rates of seeing friends "frequently" were noted for American Indian/Alaska Native students, but the differences usually were not statistically significant because of the small size of that group. Hispanic students generally were less social than other groups of students. They were the most likely "never" to get together with friends outside of class (21% vs. 6% for white students, for example, $p<.001$), more likely "rarely" or "never" to get phone calls from friends than most other groups (42% vs. 29% for white students, $p<.001$), and the least likely to be invited to other children's social activities (e.g., 83% vs. 91% for white students, $p<.01$). Students with home computers who were of Asian or Pacific Islander backgrounds were the most likely to interact via email or chat rooms (e.g., 45% vs. 12% for Hispanic students, $p<.05$). Differences between groups in the degree to which students participated in none of these activities were not statistically significant.

## Summary

SEELS findings demonstrate that a large majority of elementary and middle school students interacted in a variety of ways with individual friends outside of class or organized group activities. Parents of SEELS students reported that most students met with friends, received telephone calls from friends, were invited to friends' social activities, and/or communicated with peers electronically. For example, about 90% of students met with friends away from school at least "occasionally," and an equal proportion received an invitation to a friend's social activity. Two-thirds of students "occasionally" or "frequently" received a telephone call from a friend and almost one-fourth of students who had a home computer used it to communicate via email or chatrooms. Only 1% of students reportedly participated in none of these forms of interactions with friends.

However, differences between primary disability categories demonstrate how functional limitations can have significant effects on social interactions. Students with learning disabilities or speech/language, hearing, or other health impairments tended to be the most socially active. Students with autism, traumatic brain injury, multiple disabilities, and deaf-blindness had much less frequent contacts with friends. Nevertheless, these students were not wholly out of touch with their peers; the majority did visit with friends at least "occasionally," and most had received an invitation to other children's social activities at some time in the preceding year.

There was a pattern of greater social interaction among older students, consistent with research on the general population of students. Gender differences also were noted, with boys favoring frequent in-person visits with friends, and girls being more frequent users of the telephone to interact with friends. The social activities of students with disabilities also varied with ethnicity and income. Greater economic resources were related to more frequent social activities of several kinds. In addition, some behaviors, such as using the telephone to contact friends, or the practice of extending invitations to social events, appear to have a cultural component.

The kinds of interactions with individual friends described here are not the only forms of social engagement in which students can participate, of course. Beyond interactions that naturally occur among students in the classroom, many students also participate in organized group activities in which a wide range of interactions can occur. This form of social interaction on the part of elementary and middle school students with disabilities is described in the following chapter.

## 5. STUDENTS' PARTICIPATION IN EXTRACURRICULAR ACTIVITIES

**By Nicolle Garza, Tom W. Cadwallader, and Mary Wagner**

The lives of many students are substantially enriched by their participation in organized extracurricular activities, which we define very broadly to include adult-sanctioned organized activities that students do outside of the classroom, whether or not they are school-sponsored. Students can engage in such activities individually, such as taking private music lessons, or in groups, such as taking part in scouting or a school club. Students participate in extracurricular activities to be with peers, to learn new skills, to stay fit, or simply to have fun. In recognition of the importance of such activities, IDEA '97 requires Individual Educational Programs (IEPs) to address student participation in extracurricular and nonacademic activities, as well as the general education curriculum (P. L. 105-17 § 614 111 Stat.84). Consistent with this, presence and participation in the community, including extracurricular activities, is one of the primary outcome domains for assessing the well-being of students with disabilities posited by the National Center for Educational Outcomes (NCEO, 1994).

The social, psychological, and educational benefits of extracurricular activities are well known. Extracurricular participation has been shown to have a beneficial effect on academic performance (e.g., Marsh, 1992; Camp, 1990) and to diminish the likelihood of school dropout (Mahoney & Cairns, 1997). Gerber (1996) also found a correlation between extracurricular involvement and academics, results that were "consistent with the argument that participation in [extracurricular activities] promotes greater academic achievement" (p. 48). Research also has suggested positive relationships between structured nonacademic activities and both ethnic identification (Davalos, Chavez, & Guardiola, 1999) and self-esteem (Coladarci & Cobb, 1996). Extracurricular participation also is associated with prosocial peer relations and lower rates of drug use (Borden, Donnermeyer, & Scheer, 2001; Shilts, 1991).

Despite these potential benefits of extracurricular activities to students, questions remain. For example, it is not clear whether extracurricular activity participation produces benefits, or whether already successful students are more inclined to participate in them, or both (O'Brien & Rollefson, 1995). The kind of activity also may influence outcomes (Eccles & Barber, 1999). In addition, not all students may benefit; the impacts of extracurricular programs vary for students of different ages, socioeconomic levels, racial/ethnic groups, and genders (Berk & Goeble, 1987; Eder & Parker, 1987; McNeal, 1998; Lisella & Serwatka, 1996). Further, little is known about the levels of participation in such activities by students with disabilities or the extent to which they benefit from that participation.

Here, we describe the involvement of elementary and middle school students with disabilities in extracurricular activities. We first address the question, where did students go after school? We then consider the frequency of their involvement in extracurricular activities and the extent to which those activities were sponsored by schools or community organizations. The kinds of activities in which students participated are identified, as well as variations in participation for students who differed in their primary disability classification, as well as in age, gender, ethnicity, and household income.

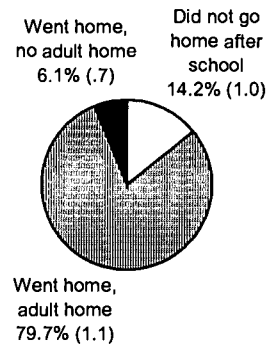
## Where Students Went After School

Changes in the demographics of the American family have spawned increased public attention to what happens to students after school (Capella & Larner, 1999). When the norm was a two-parent family with a mother who did not work outside the home, students typically came home after school to adult supervision and informal or organized activities arranged by parents. A dramatic increase in both single-parent families and families with two working adults has meant that families increasingly struggle to provide supervision and safe, productive activities for students after school (Afterschool Alliance, 2000). The phenomenon of "latchkey" children testifies to families' inability to do so at all times. An estimated 4 million children ages 5 to 12 regularly spend some amount of time without adult supervision (National Institute on Out-of-School Time, 2001); the figures increase dramatically as children age.

Public concern with this issue is fueled by the negative consequences for both children and society that can occur when children are left unsupervised. For example, most unintentional injuries and related deaths experienced by children younger than 14 occur when they are out of school and unsupervised (Kasik, 2000). Further, the rate of violent juvenile crimes reportedly triples between the hours of 3:00 and 6:00 p.m., relative to earlier in the day when students are in school and supervised (Sickmund, Snyder, & Poe, 1997; Fox & Newman, 1998).

Public concern has sparked public support for increasing the opportunities for safe, productive out-of-school activities for young people (Charles Stewart Mott Foundation, 1998), particularly in low-income neighborhoods, where after-school programs are markedly more limited than in other neighborhoods. Both public and private action has followed. For example, through the 21st Century Community Learning Centers program, the federal government has funded more than 6,800 out-of-school programs in 1,400 primarily rural and inner-city communities to provide academic support and enrichment for children and youth; $206 million was awarded to 308 new centers in 2001. The Charles Stewart Mott Foundation has pledged more than $100 million over several years to enhance the programs through technical assistance and evaluation. These and many other efforts at the state and local levels are being undertaken to ensure that students have access to safe, supervised, high-quality activities in the nonschool hours.

**Exhibit 5-1**
**AFTER SCHOOL SUPERVISION OF STUDENTS WITH DISABILITIES**




Unweighted n = 7,445; standard errors are in parentheses.

### Supervision and Activities after School

According to parents, the large majority of 6- to 13-year-old students with disabilities (80%) usually went home from school to adult supervision (Exhibit 5-1); very few students usually were unsupervised after school (6%). Just over 14% of students did not go home, but participated in after-school activities elsewhere. Students who did not go directly home from school went to after-school child care programs

(57%); extracurricular activities (18%); babysitters (9%); relatives, friends, or neighbors (8%), tutors (4%), multiple or "other" destinations (3%); or appointments for therapies or other services (1%).

**Exhibit 5-2**
**AFTER-SCHOOL SUPERVISION, BY DISABILITY CATEGORY**

| Disability Category | Percentage who: Did Not Go Home After School | Went Home, Adult Supervision | Went Home, No Adult Supervision | Sample Size |
|---|---|---|---|---|
| Learning disability | 14.1 (1.7) | 77.8 (2.1) | 8.1 (1.4) | 730 |
| Speech/language impairment | 14.3 (1.8) | 80.7 (2.0) | 5.1 (1.1) | 680 |
| Mental retardation | 10.4 (1.7) | 86.7 (1.9) | 2.9 (.9) | 627 |
| Emotional disturbance | 15.8 (2.0) | 78.3 (2.3) | 5.8 (1.3) | 606 |
| Hearing impairment | 17.4 (2.4) | 77.6 (2.7) | 5.0 (1.4) | 672 |
| Visual impairment | 13.9 (2.5) | 83.3 (2.7) | 2.9 (1.2) | 593 |
| Orthopedic impairment | 15.9 (2.3) | 78.4 (2.6) | 5.7 (1.5) | 736 |
| Other health impairment | 18.5 (2.1) | 73.4 (2.4) | 8.1 (1.5) | 794 |
| Autism | 14.2 (2.0) | 84.2 (2.0) | 1.7 (.7) | 1,007 |
| Traumatic brain injury | 12.3 (3.8) | 83.7 (4.2) | 4.0 (2.2) | 269 |
| Multiple disabilities | 14.4 (2.1) | 83.7 (2.2) | 1.9 (.8) | 706 |
| Deaf-blindness | -- | -- | -- | 25 |

### Disability Differences in Supervision and Activities after School

Students with different primary disability classifications did not differ markedly in the extent to which they were cared for outside the home after school (Exhibit 5-2); from 10% to 18% of students usually did not go directly home after school. However, there were differences in the extent to which students went home to adult supervision. Students with learning disabilities or emotional disturbances were the most likely not to have supervision at home (8%), a higher level than students with mental retardation or visual impairments (3%), for example ($p<.01$).

There also were differences in the kinds of activities in which students participated who did not go home after school. For example, from 63% to 67% of students with speech impairments, autism, or multiple disabilities who typically did not go right home after school went to after-school child care programs, compared with 43% and 46% of students with orthopedic or other health impairments ($p<.05$). In contrast, about one-fourth of students with learning disabilities or hearing impairments when to extracurricular activities after school, compared with fewer than 10% of students with orthopedic impairments or multiple disabilities ($p<.01$). No students with learning disabilities or speech or hearing impairments typically went to appointments for therapies after school, but 5% and 6% of students with emotional disturbances and orthopedic impairments did so.

### Demographic Differences in Supervision and Activities after School

Few differences in after-school care were noted between boys and girls. Students who were ages 6 to 9 and 10 to 12 were equally likely to go directly home after school (86% and 87%) Younger students with disabilities who did not go directly home from school were more likely to go

to after-school child care programs than older students (64% vs. 46%, p<.05); older students were much more likely to participate in extracurricular activities after school (30% vs. 10%, p<.01). Among those who went directly home, older students were less likely to have adult supervision there (10% of those 10 to 12) than younger students (3% of those ages 6 to 9, p<.001[1]).

These age-related differences in after-school experiences are likely to be related to some of the differences between disability categories that were noted above. For example, students with speech impairments and autism had the highest proportion of young students of all the disability categories; they also were most likely to have students who went to after-school child care, an activity most common among young students. Thus, it is unclear whether it is the disabilities of those students or the higher proportion of younger students among them that accounts for their pattern of after-school activities.

Students were equally likely to be cared for outside the home after school, regardless of household income (Exhibit 5-3). However, there were differences in the extent to which students who went directly home after school were unsupervised. Students from higher-income households were more likely to be unsupervised at home (8% and 7%) than students from families in the lowest-income group (4%, p<.01 and .05, respectively). Among students who typically did not go directly home after school, students from lower-income households were more likely to be cared for by a neighbor, relative, or friend than higher-income students (11% vs. 2%, p<.05). In contrast, higher-income students were the most likely to go to after-school child care.

**Exhibit 5-3**
**STUDENTS' AFTER-SCHOOL CARE, BY HOUSEHOLD INCOME AND RACE/ETHNICITY**

| | Household Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| | $25,000 or less | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaska Native |
| Percentage of students whose families reported they: | | | | | | | | |
| Did not come home after school | 14.0 | 13.4 | 16.5 | 14.1 | 16.2 | 12.4 | 14.6 | 30.0 |
| | (1.6) | (1.7) | (1.8) | (1.2) | (2.3) | (2.7) | (9.4) | (17.8) |
| Came home to adult supervision | 82.2 | 78.1 | 76.4 | 78.4 | 80.4 | 84.4 | 82.1 | 68.2 |
| | (1.8) | (2.0) | (1.8) | (1.4) | (2.5) | (3.0) | (10.2) | (18.1) |
| Came home to no adult supervision | 3.8 | 8.5 | 7.1 | 7.5 | 3.3 | 3.2 | 3.3 | 1.8 |
| | (.9) | (1.4) | (1.3) | (.9) | (1.1) | (1.5) | (4.7) | (5.1) |
| Sample size | 2,542 | 2,147 | 2,419 | 4,680 | 1,577 | 917 | 148 | 40 |

Consistent with findings regarding income differences, white students, who had higher average incomes than others, were more likely to be unsupervised at home (8%) than other students (2% to 3%), significantly so when compared with African American and Hispanic students (p<.01 and .05, respectively). American Indian and Alaska Native students were the least likely to go home right after school (30%), but this group represented a small number of students and the difference

[1] This rate is similar to that for the general population of young students; 2% of second graders and 3% of third graders were found to be at home unsupervised regularly (Brimhall, Reaney, & West, 1999).

did not attain statistical significance. Among those who generally went somewhere besides home after school, white students were more likely to be cared for by a babysitter than other students (12% vs. 3% for African American students, for example, $p<.05$). In contrast, African American students were the most likely to be cared for by a neighbor, relative, or friend (14% vs. 2% of Hispanic students, for example, $p<.05$), consistent with he income-related differences noted above.

## Participation in Extracurricular Activities

Beyond the question of where students with disabilities went after school and whether they had the benefit of adult supervision, the extent to which they participated in extracurricular activities also was of interest. Through such activities, students could explore interests, learn skills, interact with other students and with adults, and potentially benefit in several ways. For example, research has shown that spending 1 to 4 hours in extracurricular activities per week is associated with a 49% lower likelihood of using drugs and a 37% lower likelihood of becoming a teen parent (U.S. Department of Health and Human Services, 1996). Parents of SEELS students were asked whether students took lessons or classes outside of school,[2] participated in organized group activities at school[3] or in the community,[4] or volunteered or did other forms of community service.

### Types of Extracurricular Activities

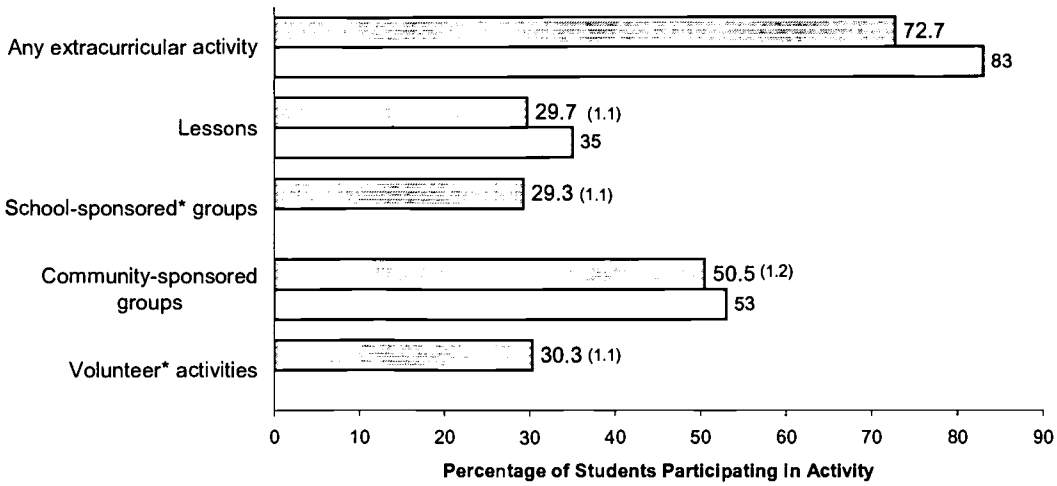
Three-fourths of elementary and middle school students with disabilities were reported to have participated in at least one of these kinds of extracurricular activities during the 1999-2000 school year (Exhibit 5-4). They were involved in activities to a somewhat lesser degree than their counterparts in the general population, among whom 81% of students ages 6 to 13 were involved in some sort of extracurricular activity (NSAF, 1999). Three in 10 students with disabilities were reported to take lessons of some kind, also a rate of activity somewhat lower than that of the general population of students (35%, NSAF, 1999). A similar percentage of students with disabilities participated in organized group activities sponsored by their school (29%). Students were more likely to participate in a community-sponsored group activity than a school-sponsored one; half were reported to have done the latter in the preceding school year ($p<.001$ compared with school-sponsored activities). This rate is quite similar to that of students in the general population (53%; NSAF, 1999). Volunteer activities were undertaken by 30% of students with disabilities.

[2] Parents were asked whether students had participated in the preceding school year in any "lessons or classes outside of school in things like art, music, dance, foreign language, religion, or computer skills."

[3] Parents were asked if students had participated in the preceding school year in "any school activities outside of class, such as sports teams, band or chorus, or student government."

[4] Parents were asked if students had participated in the preceding school year in "any out-of-school activities, such as clubs, sports, religious groups, or scouting."

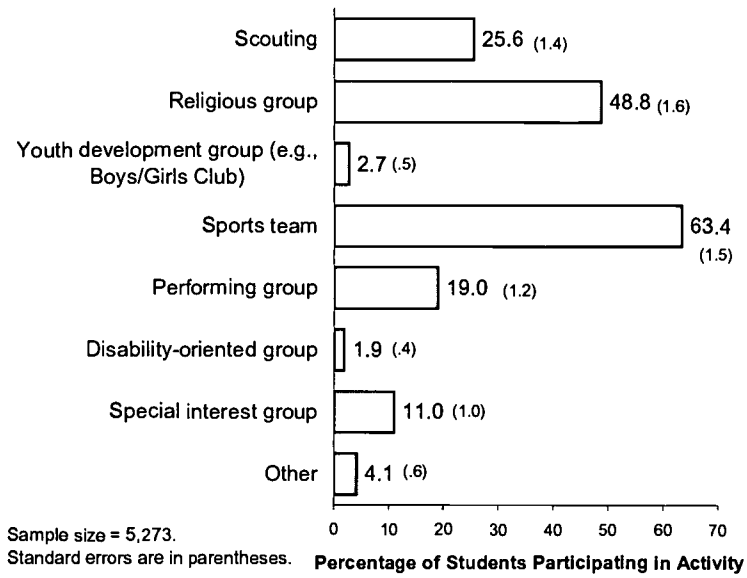
**Exhibit 5-4**
**PARTICIPATION IN EXTRACURRICULAR ACTIVITIES**




* Data for general population not available.
Standard errors are in parentheses.

The types of groups in which students with disabilities participated varied widely, reflecting the wide-ranging interests that would be expected in a nationally representative group of students (Exhibit 5-5). Sport teams were by far the most common group, with 63% of students with disabilities playing on a sports team, a higher rate than their counterparts in the general population (56%, NSAF, 1999). This higher rate of sports team membership among students with disabilities may be explained by the fact that they had a higher proportion of boys than the general population, among whom sports teams were a more common form of group affiliation than among girls. It also is common for individuals to play to their own strengths, preferring skills and tasks that carry the likelihood of success and accomplishment. For some students with kinds of disabilities that challenged their academic performance, the playing field might have offered the opportunity for competence and parity with other students.

**Exhibit 5-5**
**TYPES OF GROUPS IN WHICH STUDENTS WITH DISABILITITES PARTICIPATED**




Sample size = 5,273.
Standard errors are in parentheses.

Community-sponsored activities, particularly religious youth groups (49%) and scouting (26%), also were popular. Almost one in five students participated in a performing group, such as a band or choir, in school or in the community, and 11% participated in another kind of special interest group (e.g., chess club or other hobby club). Few students participated in a disability-oriented group.

Not surprisingly, students who participated in extracurricular activities also had more active friendships (Exhibit 5-6), perhaps because extracurricular participants were exposed to a wider range of social interactions and opportunities to make friends, or perhaps functional limitations that made extracurricular participation difficult for some students similarly limited their ability to interact with friends. (i.e., students who were unable to participate in after-school programs also may not have been able to visit with friends or attend other kinds of social events). Involvement with friends in every form was more common among those who participated in extracurricular

**Exhibit 5-6**
**FRIENDSHIPS AND PARTICIPATION IN EXTRACURRICULAR ACTIVITIES**

| | Students participated in: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Any Activity | | Lessons or Classes | | School Group | | Community Group | | Volunteer Activity | |
| Percentage who: | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes |
| Visited with friends: | | | | | | | | | | |
| Never | 18.1 (2.0) | 6.3 (0.7) | 11.4 (1.0) | 3.8 (0.9) | 11.8 (1.0) | 4.7 (0.9) | 15.3 (1.5) | 5.4 (0.7) | 11.7 (1.0) | 3.9 (0.9) |
| Occasionally (fewer than four times a week) | 60.5 (2.5) | 66.1 (1.4) | 63.2 (1.5) | 69.1 (2.2) | 64.2 (1.5) | 66.1 (2.1) | 62.6 (2.0) | 66.4 (1.6) | 63.4 (1.5) | 68.6 (2.2) |
| Frequently (four or more times a week) | 21.5 (2.1) | 27.6 (1.3) | 25.4 (1.3) | 27.1 (2.1) | 24.0 (1.4) | 29.2 (2.0) | 22.1 (1.7) | 28.3 (1.5) | 24.9 (1.3) | 27.5 (2.1) |
| Received telephone calls from friends: | | | | | | | | | | |
| Rarely (less than once a month) or never | 46.3 (2.6) | 27.8 (1.3) | 35.7 (1.5) | 25.6 (2.1) | 39.7 (1.6) | 20.2 (1.8) | 40.0 (2.0) | 28.1 (1.5) | 38.1 (1.5) | 21.4 (1.9) |
| Occasionally (one or more times monthly) | 26.6 (2.3) | 33.7 (1.4) | 30.9 (1.4) | 33.9 (2.3) | 30.7 (1.5) | 34.0 (2.1) | 29.4 (1.9) | 33.4 (1.6) | 29.5 (1.4) | 37.3 (2.3) |
| Frequently (several times a week) | 27.1 (2.3) | 38.6 (1.5) | 33.3 (1.4) | 40.6 (2.4) | 29.7 (1.5) | 45.8 (2.2) | 30.6 (1.9) | 38.5 (1.6) | 32.5 (1.5) | 41.3 (2.3) |
| Had been invited to other children's social activities | 82.5 (1.7) | 92.8 (.7) | 87.8 (.9) | 94.0 (1.1) | 87.7 (.9) | 94.3 (1.0) | 84.9 (1.3) | 94.2 (.8) | 87.2 (1.0) | 95.2 (.9) |
| Used email or chat rooms | 10.6 (2.3) | 25.1 (1.5) | 20.1 (1.6) | 27.0 (2.4) | 16.3 (1.5) | 31.8 (2.4) | 18.9 (2.2) | 24.1 (1.7) | 16.8 (1.5) | 31.8 (2.5) |
| Participated in none of these activities with individual friends | 2.1 (.7) | .8 (.3) | 1.4 (.4) | .4 (.3) | 1.5 (.4) | .4 (.3) | 1.8 (.6) | .7 (.3) | 1.2 (.3) | .9 (.5) |
| Sample size: All students | 2,498 | 5,844 | 5,944 | 2,378 | 5,907 | 2,405 | 3,809 | 4,523 | 6,016 | 2,260 |
| Computer users | 1,324 | 4,231 | 3,682 | 1,862 | 3,741 | 1,793 | 2,179 | 3,371 | 3,739 | 1,777 |

Standard errors are in parentheses.

activities. Students who participated in lessons and classes, school or community groups, or volunteer activities were more likely to visit with friends "occasionally" or "frequently," to talk with friends on the phone "occasionally" or "frequently," to be invited to other children's social activities, and to use email or chat rooms. These findings are consistent with other recent studies of the relationship between extracurricular involvement and peer relations, as described above.

Because of these relationships between active friendships and participation in extracurricular activities, we expect to see some of the same disability and demographic differences in extracurricular participation than were demonstrated for friendship interactions in Chapter 4.

### Disability Differences in Extracurricular Activities

Across the disability categories, from 50% to 81% of students had participated in some kind of extracurricular activity in the preceding school year (Exhibit 5-7). Students with other health impairments were the most likely to have participated in an extracurricular activity; more than 80% had done so, compared with 70% of students with hearing impairments and 75% of those with learning disabilities, for example ($p<.05$). Students with mental retardation, multiple disabilities, or deaf-blindness were the least active in extracurricular activities (from 51% to 60%). Students with mental retardation or deaf-blindness were among the least likely to participate in each kind of extracurricular activity examined.

There was markedly less variation across disability categories in the extent to which students took part in lessons or other enrichment classes outside of school than in their participation in organized group activities sponsored by the school or community organizations. Between 21% and 34% of students across the disability categories had participated in lessons or enrichment classes. This 13-point spread compares with a difference of 32 percentage points for participation in school-sponsored group activities (6% to 38%) and 42 percentage points for participation in community-sponsored group activities (23% to 66%). Community-sponsored group activities were the most common form of extracurricular participation for students in all disability categories except those with deaf-blindness, who were somewhat more likely to have taken lessons or classes than participate in community-sponsored group activities.

Among students who took part in group activities, sports teams were the most common groups for students in most disability categories; however, those with mental retardation, visual or orthopedic impairments, or autism were most likely to belong to religious groups. Participation in disability-related groups was most common for students with mental retardation (10%), autism (14%), or multiple disabilities (11%). Students with speech or language impairments were among the most likely to take part in sports teams (71%), and scouting (31%), whereas students with emotional disturbances were the most likely to take part in special interest groups (15%) and youth development groups (6%).

## Exhibit 5-7
## PARTICIPATION IN EXTRACURRICULAR ACTIVITIES, BY DISABILITY CATEGORY

| Percentage Who: | Learning Disability | Speech/ language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Autism | Traumatic Brain Injury | Multiple Disabilities | Deaf Blindness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Had participated in: | | | | | | | | | | | | |
| Any extracurricular activity | 74.8 (1.8) | 78.3 (1.9) | 50.4 (2.3) | 68.6 (2.2) | 77.7 (2.3) | 70.4 (2.8) | 68.8 (2.4) | 81.1 (2.0) | 62.3 (2.6) | 63.2 (4.7) | 59.6 (2.6) | 50.8 (16.8) |
| Lessons or classes outside of school | 28.7 (1.9) | 33.8 (2.2) | 21.0 (1.9) | 25.7 (2.1) | 35.7 (2.6) | 33.4 (2.8) | 31.3 (2.5) | 30.9 (2.3) | 30.9 (2.5) | 29.5 (4.5) | 23.2 (2.3) | 28.4 (15.2) |
| School-sponsored group | 31.7 (2.0) | 30.4 (2.1) | 17.6 (1.8) | 24.2 (2.0) | 32.6 (2.6) | 25.9 (2.7) | 22.6 (2.2) | 38.3 (2.4) | 17.8 (2.0) | 18.5 (3/8) | 20.3 (2.2) | 6.5 (8.3) |
| Community-sponsored group | 47.6 (2.1) | 57.0 (2.3) | 39.8 (2.3) | 44.8 (2.3) | 51.6 (2.7) | 43.6 (3.0) | 45.4 (2.6) | 65.6 (2.4) | 42.6 (2.6) | 42.1 (4.8) | 42.9 (2.7) | 23.4 (14.2) |
| Volunteer activity or community service | 29.6 (2.0) | 35.5 (2.3) | 17.4 (1.8) | 25.9 (2.1) | 31.0 (2.6) | 26.9 (2.7) | 29.5 (2.4) | 37.8 (2.4) | 21.6 (2.2) | 22.9 (4.1) | 19.7 (2.2) | 10.7 (10.5) |
| Were group members who belonged to: | | | | | | | | | | | | |
| Sports team | 61.2 (2.7) | 71.4 (2.6) | 47.1 (3.5) | 59.3 (3.2) | 64.0 (3.7) | 47.9 (4.6) | 48.9 (4.0) | 63.4 (2.8) | 45.6 (4.0) | 60.6 (6.9) | 58.3 (3.8) | -- |
| Religious group | 44.4 (2.7) | 52.6 (2.9) | 52.6 (3.5) | 49.9 (3.2) | 52.3 (3.8) | 50.2 (4.6) | 55.5 (4.0) | 50.1 (2.9) | 51.9 (4.0) | 55.0 (7.0) | 46.1 (3.8) | -- |
| Scouting | 22.0 (2.3) | 31.3 (2.7) | 20.3 (2.8) | 24.4 (2.8) | 22.3 (3.2) | 32.6 (4.3) | 29.4 (3.6) | 27.2 (2.6) | 22.5 (3.4) | 21.3 (5.8) | 15.5 (2.8) | -- |
| Performing group | 22.1 (2.3) | 17.6 (2.2) | 12.2 (2.3) | 13.7 (2.2) | 20.8 (3.1) | 24.1 (3.9) | 17.4 (3.0) | 20.5 (2.4) | 15.7 (2.9) | 17.5 (5.3) | 13.4 (2.6) | -- |
| Special interest group | 11.7 (1.7) | 9.3 (1.7) | 8.4 (1.9) | 14.9 (2.3) | 10.8 (2.4) | 12.3 (3.0) | 12.6 (2.6) | 13.0 (2.0) | 7.7 (2.1) | 11.7 (4.5) | 9.8 (2.3) | -- |
| Youth development group (e.g., Boys/ Girls Club) | 2.6 (.9) | 2.6 (.9) | 2.5 (1.1) | 6.3 (1.6) | 3.3 (1.4) | 1.9 (1.3) | 2.1 (1.1) | 1.7 (.8) | 3.2 (1.4) | 0.0 (.0) | 3.5 (1.4) | -- |
| Disability-oriented group | 1.1 (0.6) | .0 (.0) | 10.5 (2.1) | 1.1 (.7) | 5.6 (1.8) | 6.8 (2.3) | 7.3 (2.1) | 2.4 (.9) | 13.5 (2.3) | 2.1 (2.0) | 11.3 (2.4) | -- |
| Other group | 4.6 (1.5) | 3.4 (1.1) | 6.6 (1.7) | 5.1 (1.4) | 3.5 (1.4) | 4.1 (1.8) | 3.0 (1.4) | 4.4 (1.2) | 4.8 (1.7) | 5.7 (3.2) | 5.0 (1.7) | -- |
| Sample size: All students | 1,023 | 824 | 851 | 853 | 1,012 | 797 | 973 | 922 | 1,092 | 350 | 829 | 49 |
| Group members | 617 | 533 | 386 | 448 | 618 | 400 | 492 | 676 | 515 | 169 | 404 | 15 |

--Too few cases to report separately. Standard errors are in parentheses.

### Demographic Differences in Extracurricular Activities

**Age.** The overall level of participation in extracurricular activities did not differ between age groups (Exhibit 5-8), but choices of activities were different for students of different ages. School-sponsored group activities appeared to be more popular among older students. For example, 35% of the older age group participated in school-sponsored groups, compared with 23% of the younger age group ($p<.001$), while participation rates in community-sponsored activities for both age groups was 51%. These differences may reflect the fact that middle and high schools tend to offer more school activities than elementary schools. Over time, it will be interesting to see if this pattern continues, as it could have ramifications for student's academic achievement. Gerber found that "participation in school activities was more strongly associated with academic achievement than was participation in activities outside of school" (1996, p. 48).

**Exhibit 5-8**
**PARTICIPATION IN EXTRACURRICULAR ACTIVITIES, BY AGE AND GENDER**

| | Age | | Gender | |
|---|---|---|---|---|
| Percentage who: | 6 to 9 | 10 to 12 | Male | Female |
| Had participated in: | | | | |
| Any extracurricular activity | 72.5 | 75.7 | 25.8 | 26.2 |
| | (1.5) | (1.5) | (1.3) | (1.8) |
| Lessons or classes outside of school | 30.8 | 28.9 | 25.9 | 37.1 |
| | (1.6) | (1.6) | (1.3) | (2.0) |
| School-sponsored group activities | 22.8 | 35.4 | 30.6 | 28.2 |
| | (1.4) | (1.7) | (1.4) | (1.9) |
| Community-sponsored group activities | 51.1 | 50.6 | 53.3 | 47.2 |
| | (1.7) | (1.7) | (1.5) | (2.1) |
| Volunteer activity or community service | 28.6 | 32.5 | 29.8 | 32.0 |
| | (1.6) | (1.6) | (1.4) | (2.0) |
| Were group members who belonged to: | | | | |
| Sports team | 65.5 | 62.2 | 69.5 | 50.7 |
| | (2.2) | (2.1) | (1.7) | (2.8) |
| Religious group | 53.1 | 45.2 | 47.2 | 52.2 |
| | (2.3) | (2.2) | (1.9) | (2.8) |
| Scouting | 31.9 | 20.7 | 24.7 | 27.5 |
| | (2.1) | (1.8) | (1.6) | (2.5) |
| Performing group | 13.7 | 23.6 | 11.8 | 34.3 |
| | (1.6) | (1.9) | (1.2) | (2.6) |
| Special interest group | 7.9 | 13.8 | 10.0 | 12.5 |
| | (1.2) | (1.5) | (1.1) | (1.8) |
| Youth development group (e.g., Boys/Girls Club) | 3.0 | 2.4 | 2.6 | 3.1 |
| | (.8) | (.7) | (.6) | (1.0) |
| Disability-oriented group | 1.5 | 2.2 | 2.0 | 1.8 |
| | (.6) | (.7) | (.5) | (.7) |
| Other group | 3.6 | 4.7 | 3.6 | 4.9 |
| | (.8) | (.9) | (.8) | (1.0) |
| Sample size: All students | 4,988 | 4,458 | 6,346 | 3,271 |
| Group members | 2,537 | 2,563 | 3,532 | 1,741 |

Standard errors are in parentheses.

Fewer than one-third of students with disabilities ages 10 to 12 took part in volunteer activities or community service, compared with 47% of students in the general population of similar ages.[5] Volunteerism is encouraged by many youth development organizations across the United States, through the U.S. Department of Education, the Corporation for National Service, and The National and Community Service Trust Act of 1993 (Committee on Labor and Human Resources and the Subcommittee on Children, Family, Drugs, & Alcoholism, 1993). Volunteerism also has become part of some service learning curricula at the high school level, and some high schools now specify a certain number of hours of community service as a graduation requirement. Given such developments, it will be interesting to see if volunteerism among SEELS students increases as they age.

**Gender**. There were no differences between boys and girls in the extent to which they participated in any extracurricular activity (Exhibit 5-8). However, their choices of activities differed in some ways. Although there were no sizeable differences in the extent to which girls and boys participated in school-sponsored groups or volunteer activities, girls were ly more likely to take lessons than boys (37% vs. 27%, $p<.001$), whereas boys were more likely to be involved with community-sponsored groups than girls (53% vs. 47%, $p<.05$). In addition, there were differences in the kinds of group activities in which students participated. Boys were more likely to play on a sports team (70% vs. 51%, $p<.001$), whereas girls were more likely to be in a performing group (34% vs. 12%, $p<.001$). These choices of activities are consistent with findings from earlier SEELS analyses in which parents reported their children's strengths or aptitudes. Boys were more likely than girls to be reported as having an aptitude for athletics, whereas girls were more likely to be reported as being good in the performing arts (Cadwallader et al., 2002).

**Household income**. Household income was strongly related to the participation of students with disabilities in extracurricular activities of several kinds (Exhibit 5-9). Wealthier students were more likely to take part in an extracurricular activity than lower-income students (90% for those with family incomes greater than $50,000 compared with 64% of those in the lowest income group, $p<.001$), suggesting that there may have been financial barriers to access or entry into some activities for lower-income students. The rate of participation in each kind of extracurricular activity was about twice as high for students from households in the highest income group than for those in the lowest income category. Further, among students who took part in school- or community-sponsored group activities, financial barriers appeared to have limited access to some activities more than others. For example, there were virtually no differences in the rates at which students from different income levels took part in religious, special interest, youth development, disability-oriented, or "other" kinds of groups. However, the proportion of students playing on a sports team increased with increases in family income (49% to 63%, $p<.001$; and 63% to 76%, $p<.001$). A similar, although smaller, difference was noted for participation in scouting (20% to 27%, $p<.05$; and 27% to 30%, $p>.05$). The income/participation pattern is consistent with extracurricular participation in the general student population. For example, NSAF (1999) reported that among elementary school students from families earning above 200% of the poverty line, 91% participated in an extracurricular activity, compared with 67% of students from families with incomes below 200% of the poverty line.

[5] Computed from the National Household Education Survey, 1999.

**Race/ethnicity**. Differences in participation in extracurricular activities also were apparent for students who differed in their race/ethnicity (Exhibit 5-9). As noted, White students have the highest median household incomes. Accordingly, a race by income interaction is suggested in these data. Consistent with the finding that participation levels increase with income, White students were more likely to participate in activities of all kinds than other students. . For example, 33% of White students took lessons or enrichment classes outside of school, compared with 24% of African American students ($p < .001$) and 23% of Hispanic students ($p < .01$). Students of Asian or Pacific Islander descent were the least likely

**Exhibit 5-9**
**PARTICIPATION IN EXTRACURRICULAR ACTIVITIES, BY INCOME AND RACE/ETHNICITY**

| | Income | | | Race/Ethnicity | | | | |
|---|---|---|---|---|---|---|---|---|
| Percentage who: | <= $25,000 | $25,001 to $50,000 | More than $50,000 | White | African American | Hispanic | Asian/ Pacific Islander | American Indian/ Alaska Native |
| Had participated in: | | | | | | | | |
| Any extracurricular activity | 63.7 (1.9) | 76.5 (2.0) | 90.0 (1.3) | 80.5 (1.1) | 69.7 (2.5) | 53.6 (3.6) | 53.6 (10.7) | 79.3 (12.2) |
| Lessons or classes outside of school | 20.6 (1.6) | 25.5 (2.0) | 45.2 (2.2) | 33.0 (1.4) | 23.7 (2.4) | 23.2 (3.1) | 25.5 (9.7) | 28.6 (14.9) |
| School-sponsored group activities | 20.0 (1.6) | 35.3 (2.2) | 42.7 (2.2) | 33.6 (1.4) | 24.2 (2.4) | 18.1 (2.8) | 16.6 (7.9) | 27.9 (13.5) |
| Community-sponsored group activities | 37.2 (1.9) | 61.5 (2.2) | 68.5 (2.1) | 58.1 (1.4) | 43.0 (2.7) | 29.6 (3.3) | 27.4 (9.5) | 36.9 (14.5) |
| Volunteer activity or community service | 20.2 (1.6) | 31.3 (2.2) | 44.3 (2.2) | 36.7 (1.4) | 21.7 (2.3) | 14.9 (2.6) | 21.7 (9.3) | 27.5 (13.7) |
| Were group members who belonged to: | | | | | | | | |
| Sports team | 49.0 (2.9) | 63.2 (2.7) | 75.8 (2.2) | 66.7 (1.7) | 48.4 (3.8) | 68.5 (5.3) | 59.8 (17.0) | 72.1 (19.5) |
| Religious group | 49.6 (2.9) | 46.7 (2.8) | 49.3 (2.6) | 49.0 (1.8) | 53.2 (3.8) | 43.4 (5.7) | 28.6 (15.7) | 72.1 (19.5) |
| Scouting | 19.9 (2.4) | 26.8 (2.5) | 30.1 (2.4) | 29.9 (1.7) | 16.3 (2.8) | 12.6 (3.8) | 19.0 (13.6) | 21.4 (17.8) |
| Performing group | 14.7 (2.1) | 19.9 (2.2) | 21.6 (2.1) | 18.4 (1.4) | 22.7 (3.2) | 15.1 (4.1) | 15.4 (12.5) | 22.6 (18.2) |
| Special interest group | 10.7 (1.8) | 9.5 (1.6) | 12.1 (1.7) | 11.0 (2.4) | 11.3 (2.4) | 9.0 (3.3) | 8.0 (9.4) | 6.9 (11.1) |
| Youth development group (e.g., Boys/ Girls Club) | 2.2 (.9) | 3.0 (1.0) | 3.0 (.9) | 2.5 (.6) | 3.5 (1.4) | .9 (1.1) | .0 (.0) | 16.4 (16.1) |
| Disability-oriented group | 2.3 (.9) | 1.7 (.7) | 1.7 (.7) | 1.8 (.5) | 2.2 (1.1) | 2.5 (1.8) | 1.2 (3.7) | 0.3 (2.4) |
| Other group | 5.9 (1.4) | 3.9 (1.1) | 3.2 (.9) | 3.4 (.6) | 7.7 (2.0) | 5.1 (2.6) | 11.9 (11.2) | 2.9 (7.3) |
| Sample size: All students | 3,465 | 2,453 | 2,981 | 6,087 | 2,060 | 1,221 | 212 | 62 |
| Group participants | 1,453 | 1,542 | 2,047 | 3,725 | 980 | 420 | 73 | 25 |

Standard errors are in parentheses.

to participate in school- and community-sponsored group activities, with differences from their white counterparts being statistically significant ($p<.001$). Hispanic students were least likely to participate in a volunteer or community services activity (15% vs. 22% for African American and 37% of white students, for example, $p<.05$ and .001, respectively).

Among students who participated in organized group activities, African American students were less likely than white or Hispanic students to play on a sports team (48% vs. 67% and 68%, $p<.001$ and .01). White students were the most likely to participate in scouting ($p<.001$ compared with African American and Hispanic students). American Indian and Alaska Native students were the most likely to participate in a religious group (72%).

## Summary

Most elementary and middle school students with disabilities were supervised by an adult after school, as expected, given that few of them were old enough to be free from adult oversight.

Students with disabilities were similar to same-age students in the general population regarding extracurricular pursuits; the majority in both groups were active in organized extracurricular activities. Three-fourths of students with disabilities were participating in extracurricular activities and programs through which they could explore interests, learn skills, develop friendships, and participate actively as members of their schools and communities. However, rates of participation were somewhat lower than those of students in the general population.

Participation in community-sponsored group activities was more common among students with disabilities than taking part in lessons or classes outside of school, group activities sponsored by the school, or volunteer or community service activities. Students who participated in activities also tended to be students who had more frequent interactions with individual friends.

Participation in extracurricular activities was not equally common for students across disability groups. Students with more severe disabilities, such as mental retardation, multiple disabilities, or deaf-blindness, were much less likely to participate in extracurricular activities, whereas students with speech/language, hearing, or other health impairments were the most active overall.

Choice of activity and participation level were related to a variety of demographic factors, including age, gender, income, and racial/ethnic background; patterns for students with disabilities generally mirrored those observed among students in the general population. Extracurricular activities of older students focused primarily on school-sponsored group activities, which generally are more common in middle and high schools than in elementary schools; younger students were more likely to take part in community-sponsored activities. Boys and girls with disabilities engaged in extracurricular activities in about the same proportions, although differences were noted based on traditional gender roles – for example, boys were more active in sports than girls, as is historically the case in the general population.

The financial barriers to participation in some kinds of extracurricular activities that are common in the general population also were noted among students with disabilities. Those from lower-income households participated in extracurricular activities at a lower rate overall, with sports teams, scouting, and performing groups having the greatest differences in participation for students from different income levels. White students with disabilities, who had the highest median household income, also participated in extracurricular activities at higher rates than minorities.

Analyses of subsequent waves of SEELS data will explore the shifts in patterns of extracurricular activity as the developmental changes associated with increasing age and maturity take effect and as the context for such activities changes for many students from elementary to middle and high schools.

# 6. RELATIONSHIPS BETWEEN FRIENDSHIP INTERACTIONS, EXTRACURRICULAR ACTIVITIES, AND SOCIAL ADJUSTMENT

**By Tom W. Cadwallader and Mary Wagner**

Chapters 4 and 5 indicate that most elementary and middle school students receiving special education have active social lives. The vast majority of students interact with friends and take part in organized extracurricular activities of one kind or another. Analyses also suggest that active individual friendships and participation in organized group activities are related. Social activity of both kinds differ between students who differed in primary disabilities and age, gender, household income, and race and ethnicity.

What other characteristics distinguish socially active students? In particular, do socially active students demonstrate greater social skills in general? It is reasonable to expect a connection between social interactions and social competence, but the direction of that relationship is not at all clear. The idea that social interactions shape our behavior and thought—for better or worse—is long-standing (Bronfenbrenner, 1979; James, 1890; Moreno, 1953; Sullivan, 1940). What we do influences the expectations, goals, and actions of others, and their behavior has reciprocal effects on us (Bandura, 1977). From this perspective, students who engage in positive exchanges with peers individually or in groups may reap benefits from the experience in terms of their social adjustment. However, it is equally reasonable to assume that children with greater social competence choose active social lives in order to have an arena in which to exercise that competence. Regardless of whether socially competent students choose active social lives, or whether social interactions improve students' social skills, understanding of the relationship between social entities and social adjustment can help illuminate both concepts.

To help it explore these concepts, parents of SEELS students were asked to rate their children on a variety of items related to their social competence. Parents responded to 11 questions[1] about their children that addressed three areas of social ability:

- **Assertion**—the ability and willingness to become involved in social activities (e.g., joins groups without being told).
- **Self-control**—the ability to cope with frustration and to deal with conflict (e.g., ends disagreements calmly).
- **Cooperation**—the ability to cooperate and stay on task (e.g., cooperates with family members without being asked to do so).

A general scale of social ability was created by summing parents' ratings on the 11 items. Ratings are categorized as high (greater than one standard deviation above the mean), medium (within one standard deviation of the mean), and low (more than one standard deviation below the mean).

In addition to these scales of various kinds of social skills, we considered two other factors that may reflect students' abilities to abide by norms that are important in school and in their communities. The first is parents' reports of whether students ever had been suspended or

[1] Students' social skills were assessed using questions taken from the Social Skills Rating System, Parent Form (Gresham & Elliot, 1990).

expelled from school and second, for those 12 years old or older, whether they ever had been arrested. Scale scores and incidences of suspension/expulsion and arrest are analyzed in relation to the measures of individual friendship interactions presented in Chapter 4 and to the forms of extracurricular participation presented in Chapter 5.

### Interactions with Friends and Social Skills

There is a consistent, robust, and positive relationship between ratings of students' overall social skills and their frequency of interaction with friends. For example, students who visited with friends "frequently" were more likely to be rated by parents as "high" in their overall social skills (24%) than were students who "never" saw friends outside of class (10%). The inverse also was true—frequent visitors with friends were much less likely to be rated as having "low" social skills (6%) than students who "never" saw friends (28%). A very similar relationship was apparent between students' social skills and both the frequency of receiving phone calls from friends and being invited to other children's social activities—those who were more socially active in these ways also were more likely to have "high" overall social skills. Interestingly, however, this relationship was not apparent regarding use of home computers for email or chat room conversations among students who had computers; perhaps the "virtual" nature of these electronic relationships made engaging in them less subject to variation in students' social skills or, conversely, participation in them contributed less to developing such skills among participating students.

Despite these generally strong relationships, it is important to note that some students who had no friendship interactions of the kinds considered here still were rated by parents as having "high" overall social skills (3%), and some students with friendship interactions of at least one of these kinds were rated by parents as having "low" social skills (11%). Thus, high skills did not guarantee students would or could have active friendships, nor did low social skills prohibit students from interacting with peers outside of class.

When we consider the dimensions of social skills, the strongest relationships are noted between friendship interactions and assertion skills. For example, 46% of those who saw friends "frequently" had "high" social skills, compared with 12% of those who "never" saw friends outside of class, a difference of 34 percentage points, compared with a difference of 14 percentage points between those two groups in their overall social skills ratings. Differences in skill ratings are noted for each kind of friendship interaction, including use of computers for email or chat room conversations (42% of users had "high" social skills vs. 35% of nonusers). In any event, it seems clear that a distinct relationship exists between assertion skills and these students' engagement in friendship interactions of many kinds.

## Exhibit 6-1
## FRIENDSHIP INTERACTIONS AND STUDENTS' SOCIAL SKILLS

| | Social Interactions of Students | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Visited with Friends | | | Received Phone Calls from Friends | | | Invited to Social Activity | | Used Email or Chat Room | | Did Any of These | |
| Percentage with: | Never | Occasion -ally | Fre- quently | Rarely | Occasion -ally | Fre- quently | No | Yes | No | Yes | No | Yes |
| Social skills rated: | | | | | | | | | | | | |
| High | 9.5 | 20.2 | 24.4 | 11.8 | 22.7 | 26.1 | 6.9 | 21.4 | 22.4 | 25.9 | 3.2 | 20.6 |
| | (2.5) | (1.3) | (2.2) | (1.4) | (2.0) | (2.0) | (1.9) | (1.1) | (1.5) | (3.1) | (2.8) | (1.1) |
| Medium | 62.7 | 69.0 | 69.1 | 67.8 | 70.3 | 67.4 | 41.7 | 68.7 | 67.8 | 66.0 | 61.5 | 68.5 |
| | (4.1) | (1.5) | (2.4) | (2.0) | (2.1) | (2.1) | (5.3) | (1.7) | (1.7) | (3.4) | (5.8) | (1.7) |
| Low | 27.7 | 10.8 | 6.5 | 20.4 | 7.0 | 6.6 | 34.8 | 9.9 | 9.8 | 8.1 | 35.3 | 10.9 |
| | (3.8) | (1.0) | (1.3) | (1.7) | (1.2) | (1.1) | (3.5) | (.8) | (1.1) | (1.9) | (7.7) | (.8) |
| Assertion skills rated: | | | | | | | | | | | | |
| High | 11.8 | 28.9 | 45.5 | 19.5 | 33.3 | 41.4 | 10.4 | 34.1 | 34.6 | 42.1 | 6.2 | 32.1 |
| | (2.7) | (1.5) | (2.5) | (1.7) | (2.2) | (2.2) | (2.2) | (1.2) | (1.7) | (3.5) | (3.9) | (1.2) |
| Medium | 58.9 | 64.7 | 52.4 | 66.9 | 62.7 | 54.0 | 60.7 | 60.5 | 58.2 | 54.8 | 51.9 | 61.1 |
| | (4.2) | (1.5) | (2.5) | (2.0) | (2.3) | (2.2) | (3.6) | (1.2) | (1.8) | (3.5) | (5.6) | (1.8) |
| Low | 29.3 | 6.3 | 2.1 | 13.6 | 4.0 | 4.6 | 28.9 | 5.4 | 7.2 | 3.0 | 41.9 | 6.8 |
| | (3.8) | (.8) | (.7) | (1.5) | (.9) | (.9) | (3.3) | (.6) | (.9) | (1.2) | (7.9) | (.7) |
| Self-control skills rated: | | | | | | | | | | | | |
| High | 14.0 | 18.3 | 18.1 | 13.3 | 20.2 | 20.0 | 9.9 | 18.6 | 19.1 | 21.4 | 19.4 | 18.0 |
| | (2.9) | (1.2) | (2.0) | (1.4) | (1.9) | (1.8) | (2.2) | (1.0) | (1.4) | (2.9) | (6.3) | (1.0) |
| Medium | 66.5 | 71.5 | 72.0 | 70.9 | 70.8 | 71.9 | 63.8 | 70.8 | 71.7 | 69.6 | 62.4 | 71.3 |
| | (4.0) | (1.5) | (2.3) | (1.9) | (2.1) | (2.0) | (3.5) | (1.2) | (1.6) | (3.3) | (5.6) | (1.7) |
| Low | 19.5 | 10.2 | 9.9 | 15.8 | 9.0 | 8.1 | 26.3 | 10.6 | 9.2 | 9.0 | 18.2 | 10.7 |
| | (3.3) | (1.0) | (1.5) | (1.6) | (1.3) | (1.2) | (3.2) | (.8) | (1.0) | (2.0) | (6.2) | (.8) |
| Cooperation skills rated: | | | | | | | | | | | | |
| High | 17.4 | 16.5 | 15.2 | 13.2 | 17.6 | 17.9 | 11.2 | 15.9 | 16.5 | 15.4 | 7.0 | 16.4 |
| | (3.2) | (1.2) | (1.8) | (1.4) | (1.8) | (1.7) | (2.3) | (.9) | (1.3) | (2.6) | (4.1) | (1.0) |
| Medium | 59.4 | 70.6 | 74.9 | 68.8 | 73.1 | 71.9 | 57.6 | 72.3 | 73.1 | 73.4 | 60.1 | 71.4 |
| | (4.2) | (1.5) | (2.2) | (2.0) | (2.1) | (2.0) | (3.6) | (1.2) | (1.6) | (3.3) | (5.8) | (1.6) |
| Low | 24.2 | 11.9 | 9.9 | 18.0 | 9.4 | 10.2 | 31.2 | 11.9 | 10.4 | 11.2 | 32.9 | 12.2 |
| | (3.6) | (1.0) | (1.5) | (1.6) | (1.4) | (1.4) | (3.4) | (.8) | (1.1) | (2.2) | (7.5) | (.9) |
| Prior suspension or expulsion from school | 14.5 | 11.9 | 13.5 | 12.5 | 10.7 | 14.2 | 23.0 | 12.7 | 9.5 | 8.4 | 9.2 | 12.6 |
| | (3.0) | (1.0) | (1.7) | (1.4) | (1.4) | (1.6) | (3.0) | (.9) | (1.1) | (2.0) | (4.6) | (.9) |
| Previous arrest | 1.6 | 2.4 | 3.9 | 2.2 | 1.6 | 3.5 | 3.5 | 2.6 | 4.2 | .5 | 2.7 | 2.7 |
| | (1.9) | (.9) | (1.9) | (1.4) | (1.2) | (1.3) | (2.4) | (.8) | (1.5) | (.8) | (4.0) | (.8) |
| Sample size: Social skills, suspensions, expulsions | 1,194 | 5,365 | 1,725 | 3,895 | 2,259 | 2126 | 1,470 | 7,810 | 4,502 | 1,013 | 1,587 | 8,166 |
| Arrested | 321 | 1,488 | 464 | 776 | 575 | 924 | 414 | 1,865 | 1,028 | 467 | 82 | 2,187 |

Standard errors are in parentheses.

In contrast, there were no differences in ratings of self-control or cooperation skills between students who "frequently" saw friends outside of class and those who "never" did so, nor were there differences in these skills between email and chat room participants and nonparticipants. However, frequent recipients of telephone calls from friends were somewhat more likely than those who "rarely" or "never" received such calls to have high self-control skills (20% vs. 13%) and high cooperation skills (18% vs. 13%).

Interactions with friends were not strongly or consistently related to being suspended or expelled from school or arrested. For example, those who frequently visited with friends or frequently received phone calls from friends were not more or less likely reported as having been suspended or expelled or arrested than students who rarely or never visited friends or talked with them on the phone. One exception to this general pattern relates to receiving invitations to other children's social activities—students who received such invitations were less likely to have been suspended or expelled from school than nonrecipients of such invitations (13% vs. 23%). Despite this difference, however, it is important to note that the majority of suspended and expelled students were invited to friends' social activities. A second exception relates to home computer owners who used them for email or chat room conversations—those who did so were less likely to have been arrested than nonusers (<1% vs. 4%).

### Extracurricular Activities and Social Skills

Because analyses in Chapter 5 revealed a positive correlation between the frequency of friendship interactions and participation in extracurricular activities, we would expect the pattern of relationships between extracurricular activities and social skills to mirror that presented above—generally higher social skills reported for students who participated in extracurricular activities. This pattern was confirmed (Exhibit 6-2). Students who participated in extracurricular activities were rated by their parents as having better social skills than those who did not participate, regardless of the type of extracurricular activity. For example, parents rated between 23% and 28% of students who participated in the various extracurricular activities as high on the overall measure of social ability, compared with between 13% and 17% of students who did not participate in those activities.

However, the caveat mentioned above applies here as well; these relationships do not confirm the direction of influence. Extracurricular involvement may result in improved social skills, improved social skills may lead to greater extracurricular involvement, there may be a bi-directional effect, or there may be some other explanation for the relationships. For example, the positive connection between extracurricular involvement and social skills may reflect differences in primary disability classification between participants and nonparticipants. Students with severe emotional disorders, mental retardation, and autism, for example, received lower ratings from their parents for overall social skills and congregate on the low side of the self-control and cooperation scales (Cadwallader et al., 2002). These same students were those who were least likely to be involved in extracurricular activities.

Similar differences were found between the two groups for assertion and self-control skills. Students who participated in school activities generally received high ratings for self-control and cooperation skills more frequently than the students who did not participate. However, a

## Exhibit 6-2
## PARTICIPATION IN EXTRACURRICULAR ACTIVITIES AND STUDENTS' SOCIAL SKILLS

| | Student Participated In: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Lessons or Classes | | School Group | | Community Group | | Volunteer Activity | | Any Activity | |
| Percentage with: | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes |
| Overall social skills rated: | | | | | | | | | | |
| High | 17.4 | 25.8 | 17.1 | 26.2 | 16.1 | 23.5 | 16.5 | 27.7 | 12.6 | 22.9 |
| | (1.1) | (1.9) | (1.1) | (1.9) | (1.3) | (1.4) | (1.1) | (2.0) | (1.5) | (1.2) |
| Medium | 67.9 | 66.7 | 68.0 | 66.6 | 67 | 68 | 68.6 | 65.5 | 67.3 | 67.7 |
| | (2.0) | (3.2) | (2.0) | (3.1) | (2.5) | (2.3) | (2.1) | (3.1) | (3.1) | (1.9) |
| Low | 14.7 | 7.5 | 14.9 | 7.2 | 16.9 | 8.5 | 14.9 | 6.8 | 20.1 | 9.4 |
| | (1.0) | (1.2) | (1.0) | (1.1) | (1.3) | (0.9) | (1.0) | (1.1) | (1.8) | (0.8) |
| Assertion skills rated: | | | | | | | | | | |
| High | 27.6 | 41.9 | 28.3 | 40 | 25.3 | 37.9 | 27.9 | 41 | 21.1 | 36.4 |
| | (1.3) | (2.2) | (1.3) | (2.2) | (1.5) | (1.6) | (1.3) | (2.2) | (1.8) | (1.4) |
| Medium | 63.3 | 53.3 | 62.4 | 55.5 | 63.6 | 57.3 | 62.3 | 55.7 | 64.9 | 58.3 |
| | (2.0) | (3.1) | (1.9) | (3.1) | (2.3) | (2.3) | (1.9) | (3.0) | (3.1) | (2.0) |
| Low | 9.1 | 4.8 | 9.3 | 4.5 | 11.1 | 4.8 | 9.8 | 3.3 | 14 | 5.3 |
| | (0.8) | (0.9) | (0.8) | (0.9) | (1.1) | (0.7) | (0.9) | (0.8) | (1.6) | (0.6) |
| Self-control skills rated: | | | | | | | | | | |
| High | 15.9 | 22 | 16.4 | 20.6 | 15.3 | 20 | 15 | 24.4 | 12.6 | 20 |
| | (1.0) | (1.8) | (1.1) | (1.8) | (1.3) | (1.3) | (1.0) | (1.9) | (1.5) | (1.1) |
| Medium | 70.2 | 69.8 | 69.7 | 70.9 | 69.4 | 70.6 | 71.1 | 67.8 | 70.2 | 70 |
| | (2.0) | (3.1) | (2.0) | (3.1) | (2.5) | (2.2) | (2.1) | (2.9) | (3.1) | (1.9) |
| Low | 13.9 | 8.2 | 13.9 | 8.5 | 15.3 | 9.4 | 13.9 | 7.8 | 17.2 | 10 |
| | (1.0) | (1.2) | (1.0) | (1.2) | (1.3) | (1.0) | (1.0) | (1.2) | (1.7) | (0.9) |
| Cooperation skills rated: | | | | | | | | | | |
| High | 14.5 | 17.6 | 14.6 | 17.2 | 14.6 | 16.1 | 14.1 | 18.4 | 12.9 | 16.4 |
| | (1.0) | (1.7) | (1.0) | (1.7) | (1.2) | (1.2) | (1.0) | (1.7) | (1.5) | (1.1) |
| Medium | 69.9 | 72.6 | 69.6 | 73.4 | 68 | 73.3 | 70 | 72.2 | 67.5 | 72 |
| | (1.9) | (2.9) | (2.0) | (3.1) | (2.4) | (2.3) | (2.0) | (3.0) | (3.1) | (1.9) |
| Low | 15.6 | 9.8 | 15.8 | 9.4 | 17.4 | 10.6 | 15.9 | 9.4 | 19.6 | 11.6 |
| | (1.0) | (1.3) | (1.1) | (1.3) | (1.3) | (1.0) | (1.1) | (1.3) | (1.8) | (0.9) |
| Prior suspension/expulsion from school | 14.9 | 10.9 | 15.0 | 11.6 | 16.8 | 11.2 | 15.5 | 9.9 | 17.8 | 12.4 |
| | (1.0) | (1.4) | (1.0) | (1.4) | (1.3) | (1.0) | (1.1) | (1.3) | (1.7) | (.9) |
| Prior arrest | 3.2 | 1.6 | 2.7 | 2.9 | 2.1 | 3.3 | 2.7 | 3.0 | 1.9 | 3.1 |
| | (1.0) | (1.2) | (1.0) | (1.2) | (1.1) | (1.1) | (1.0) | (1.4) | (1.4) | (.9) |
| Sample size: Social skills, suspension, expulsions | 6,709 | 2,777 | 7,012 | 2,507 | 4,894 | 4,647 | 6,902 | 2,535 | 3,102 | 6,450 |
| Arrests | 1,724 | 647 | 1,430 | 940 | 1,077 | 1,300 | 1,602 | 760 | 611 | 1,768 |

Standard errors are in parentheses.

somewhat different pattern was apparent regarding cooperation skills; participants were not markedly or consistently more likely to receive high skill ratings than nonparticipants, but they were less likely to receive low skill ratings.

There is a consistent relationship between having been suspended or expelled from school and participation in extracurricular activities, with participants being less likely than nonparticipants to have been suspended or expelled. This is consistent with a similar relationship between suspensions/expulsions and invitations to other children's social activities reported above; apparently students who were suspended or expelled were less likely to be included in these kinds of group activities, even though they were no less likely to interact with friends individually. There was no consistent relationship between the rate of arrests and extracurricular activity participation.

## Summary

There was a strong positive relationship between parent's ratings of their children's social skills and both their child's peer interactions and participation in extracurricular activities. More socially active students also were reported to be generally more socially skilled students.

However, there were some subtleties in this pattern of relationship that bear noting. For example, assertion skills were most strongly linked to friendship interactions; individual friendships seemed less contingent on having good self-control or cooperation skills. However, participation in extracurricular activities, involving interactions with groups of students or other adults, related to all three kinds of social skills, affirming the more complex kinds of interactions of groups relative to individual friendship relationships. In addition, students who participated in group activities, including other children's social events, were less likely to have been suspended or expelled than non-participants, whereas this relationship did not occur regarding interactions with individual friends, suggesting that individuals in a relationship may be more "forgiving" of the kinds of behaviors that result in suspensions and expulsions than are peer groups.

On that note, it is axiomatic that problem behaviors often reside less within the individual than in interactions with others. The present research provides some support for the view that social adjustment depends on opportunities for constructive social interchanges. According to their parents, the SEELS students who received high marks for social adjustment tended to have a variety of social experiences, and knew what it was like to participate in positive, prosocial interactions.

# 7. ACTIVE PARENTS, ACTIVE STUDENTS
## By Mary Wagner and Jose Blackorby

When we look at the activities of elementary and middle school students with disabilities in their nonschool hours, including family supports for education, friendship interactions, and extracurricular activities, we see both active parents and active students.

### A Positive Picture for Many

Parents had high expectations for their children's educational attainment and were actively engaged in supporting their children's learning at home. The vast majority of students with disabilities were expected to graduate from high school with a regular diploma, and three-fourths were considered likely college graduates. In support of these expectations, more than 90% of students had parents who reported talking to them regularly about school; providing a quiet, appropriate place for them to do homework; and having household rules about doing homework, limiting television, and having a specific bedtime. More than three-fourths had parents who helped them with homework at least three times a week, a rate of frequent homework help that markedly exceeded that of the general student population.

Children too were active in their nonschool hours with both personal friendships and organized extracurricular activities. More than 90% of students were supervised after school, either at home or in programs of various kinds, and a similarly large percentage saw friends outside of school at least weekly and were invited to other children's social activities. Three-fourths participated in extracurricular activities, including lessons or classes outside of school, various groups sponsored by the school or community organizations, or volunteer activities. Those who were active with individual personal friends also were mostly likely to be active in extracurricular activities. Rates of extracurricular activity approached, but fell somewhat short, of those of the general student population.

Not surprisingly, there was an association between the social skills and the social activities of students with disabilities. For all kinds of friendship interactions and extracurricular activities, a larger proportion of students with high social skills were found among socially active students, whereas a larger proportion of less socially skilled students were found among less socially active students. However, this was not a defining relationship. Students with low social skills still were found among students with very active friendships and among participants in all kinds of extracurricular activities. Limited social skills may have challenged students in interacting with friends and in extracurricular pursuits, but did not prevent them from doing so.

### Possible Causes for Concern

These findings depict an overall picture of students actively engaged at school and/or in their communities, using their nonschool hours for enrichment, recreation, and social activities, and of parents providing support in those hours for children's learning. Yet, despite this positive general view, there are some causes for concern.

At the broadest level, we must recognize that the information reported here was provided by parents. Their perspective on what was happening with their children at home and in their social

and extracurricular pursuits may reflect their hopes or desires for their children, their intentions for their own actions, and a desire to give the "right" answer about their own actions and those of their children, as well as their best assessment of actual activities. Thus, it may well be wise to interpret the positive picture painted for the large majority of student with some caution.

In addition, a minority of children appear not to have experienced the positive supports and activities that were reported for most. About one in six students had generally low overall family support for learning, including almost one in ten who were never read to at home, 4% who had homework but who were helped with homework less than once a week, 3% with no appropriate place to do homework, and 2% whose parents rarely or never talked with them about school. Six percent of students typically had no adult supervision after school. More than one in four students participated in no organized extracurricular activities, and 1% had no interactions with friends of the kinds explored in SEELS.

It also may be of concern that for many students, parents' high expectations for their children's educational attainment in the future were likely to be out of sync with reality. The actual high school graduation rate for students with disabilities is 57% of school-leavers. This does not match up well with reports by parents, who thought 65% of students "definitely" would graduate from high school and 28% "probably" would. The 4% of high school students who actually attended a 4-year college within 5 years of leaving high school does not match up well with the expectation that 24% were expected "definitely" to graduate from one.

Further, students with disability and demographic characteristics varied widely in the extent to which the generally positive picture characterized them. Important variations for particular subgroups of students are noted below.

### Disability Isn't Everything

Disability differences distinguished students in many important ways, but not in every way. For example, parents seemed to reflect differences in students' disabilities in some of the ways they supported students' education at home, but other forms of support for learning were provided fairly consistently, regardless of primary disability. Some of the greatest variations between disability categories involved parents' expectations for students' future educational attainment. Parents were the most optimistic for students in the high-incidence categories of learning disabilities and speech/language impairments and for those with sensory impairments. In contrast, expectations were markedly lower for students with cognitive impairments that significantly challenged learning.

Despite these differences in expectations, parents arranged for after-school programs or adult supervision at home, and established household rules at fairly uniform rates, regardless of students' primary disabilities. Parents also talked with students about school, helped them with homework, and read to them fairly consistently across disability categories. One exception involved students with emotional disturbances, who were among the least likely to receive these kinds of parental support, perhaps because their disabilities were particularly challenging to the kinds of interactions with parents that were required for reading or doing homework together. However, despite generally lower levels of parental support, students with emotional disturbances were the most likely to have rules regarding the grades they were expected to achieve.

Like parents, students with different kinds of disabilities also demonstrated differences in some of the activities that filled their nonschool hours, but were quite similar in others. For example, large majorities of students in all disability categories were involved with friends. They got together outside of class with friends at least weekly, and were invited to play at other students' homes, attend birthday parties, or take part in other students' social activities. However, autism and deaf-blindness were disabilities that appeared to present significant obstacles to these kinds of interactions.

The frequency with which students interacted with friends suggests that these kinds of individual relationships may have been the most readily accomplished by students, regardless of disabilities. The more complex interactions required to take part in extracurricular activities seemed to present greater challenges. Rates of participation in such activities varied widely across disability categories, from about half of students with mental retardation and deaf-blindness, to more than 80% of students with other health impairments. Organized group activities seemed particularly challenging. For example, students participated in lessons or enrichment classes outside of school at fairly uniform rates, regardless of disability. Many of these may have been individual lessons or classes in which the primary interaction was with the teacher. However, there was much wider variation in the extent to which students took part in both school-sponsored and community-sponsored groups. These included such groups as sports teams and performing groups, in which interactions with a number of peers, as well as an adult leader, probably were expected. Students with mental retardation; multiple disabilities, including deaf-blindness; autism; or traumatic brain injuries were less likely than other students to take part in group activities.

Among students who did participate in extracurricular groups, disability differences may have affected the kinds of groups that were attractive or open to students. For example, students with visual and orthopedic impairments were among the least likely to play on sports teams; still, almost half of group participants with those kinds of disabilities did so. Other kinds of groups, such as religious groups and scouting, seemed to be fairly uniformly accessible to students, regardless of the nature of their primary disability.

These findings suggest the powerful influence of the natural drive of parents to help their children be productive family members and productive students, and the natural drive of children to have and be friends. They spurred the majority of students to engage in positive activities at home, at school, and in the community in their nonschool hours, despite the significant differences in the nature and severity of their disabilities.

### Age Makes a Difference

Students' personal preferences and aptitudes can be expected to change as students age, as can the expectations parents have for their independence and responsibility. For example, earlier SEELS analyses showed that functional mental skills and self-care abilities were higher among older students, as were responsibilities for household chores (Cadwallader, Cameto, Blackorby, Giacalone, & Wagner, 2002). Important age differences also were revealed in this report in the kinds of activities and family support that occurred in students' nonschool hours.

The higher levels of family support for learning at home that are apparent for younger students in the general population also were noted among students with disabilities. Families

more actively supported the learning of younger students with disabilities in several ways, including reading with them and helping with homework. An exception was that older students were more likely than younger students to be provided with a computer at home. In addition, household rules were more prevalent for older students, particularly with regard to grades and doing household chores. Younger students with disabilities had fewer rules in general, and they were more likely to pertain to a specific bedtime and to watching television.

Family expectations for students' future educational attainment also differed with age, with parents of older students generally having lower expectations than those of younger students. It is unclear whether this reflects the greater experience parents of older students had with their children's actual educational performance, or the different mix of disabilities represented among younger and older students (e.g., younger students had a larger proportion of students with speech/language impairments, whereas older students had larger proportions of students with learning disabilities and emotional disturbances).

Older students also had markedly different experiences after school. They were much more likely than younger students not to go directly home after school and, when they did to home, to have no adult supervision. Where students went after school, if they did not go home, also differed between age groups. Younger students were more likely to attend after-school child care programs, whereas older students were more likely to participate in extracurricular activities. Younger and older students were equally involved in after-school group activities, but younger students were more likely to take part in groups sponsored by community organizations and older students in groups sponsored by their schools. This may reflect the greater array of extracurricular activities sponsored by middle schools relative to elementary schools. There were no important differences in the degree to which older and younger students interacted with friends, but the form of interaction differed; telephone calls between friends and using a computer for email and chat room participation were more common among older students.

These differences in age groups among students with disabilities are quite similar to those documented for students in the general population, affirming the developmental importance of age in understanding variations in students' experiences, regardless of disability.

### Gender Differences, Gender Preferences

Although we know that students with disabilities include a much higher proportion of boys than the general student population, the differences between boys and girls with disabilities were not striking. Earlier SEELS research showed that, for the most part, boys and girls did not differ in their physical or sensory functioning or their ability to communicate (Blackorby, Levine, & Wagner, 2002), nor were their self-care abilities, functional mental skills, or social skills significantly different (Cadwallader et al., 2002). Similarly, in this report, analyses show that parents did not hold different expectations for their sons and daughters with disabilities, nor did they establish different rules for behavior at home or offer different kinds or levels of family support for learning.

However, differences between boys and girls did emerge in areas in which social, cultural, or family values or norms may have come into play, or in which personal preferences were exercised. For example, boys and girls did not differ in their overall level of involvement with friends, but boys were markedly more likely than girls to get together with them outside of class,

whereas girls were more likely to interact with friends by phone. Similarly, boys and girls with disabilities were equally likely to be involved in extracurricular activities, but chose different kinds of activities, reflecting their aptitudes or social norms. Boys were much more likely to be reported by parents as having a particular aptitude for athletics (Cadwallader et al., 2002) and to be involved with sports teams as their most common extracurricular activity. In contrast, parents of girls with disabilities reported significantly more often than those of boys that their daughters had a particular aptitude for the performing arts (Cadwallader et al., 2002); consistent with this, taking lessons and participating in performing groups were significantly more common extracurricular activities for girls with disabilities than for boys. These kinds of differences mirror those found in the general student population, confirming that personal aptitudes and preferences can be important influences on choices of activities for all children.

### Money Matters

Not only were low-income students a larger proportion of students with disabilities than of those in the general population, they were distinctly different from wealthier students in important ways. Poorer students generally were subject to lower expectations for educational attainment than their wealthier peers. Lower parental expectations may have reflected an understanding of the more pronounced functional limitations among poor students. Earlier SEELS analyses revealed that lower-income students with disabilities functioned less well in the physical, sensory, and communications domains and were in poorer health than wealthier students (Blackorby, Levine, & Wagner, 2002). They also had lower self-care, functional mental, and social skills (Cadwallader et al., 2002). These realities could have been expected to limit educational attainment. Lower expectations also may have reflected the reality that dropout rates were higher and postsecondary education enrollment was lower among poor students with disabilities (Valdes, Williamson, & Wagner, 1990) and those in the general population (National Center for Education Statistics, 2000) relative to wealthier peers.

Despite lower overall expectations, parents of lower-income students with disabilities supported their children's learning in many ways at rates similar to those of wealthier students. Economic differences did not translate into differences in the rates at which parents reported frequently reading to children or helping them with homework. Exceptions were that parents of poorer students were less likely to talk regularly with their children about school and, not surprisingly, were less likely to provide a computer at home. Among those who had a home computer, poorer students were less likely to use them for educational purposes than their wealthier peers. However, lower-income students were more likely to be subject to household rules about attaining a specific grade point average than were other students.

Income differences also were noted in how students spent their nonschool hours. Friendship interactions of many kinds were less common among lower-income students. Although the majority of students in all income groups interacted with friends, students in the lowest-income group were more likely to be reported "never" to visit with friends outside of class, "rarely" or "never" to receive phone calls from them, and not to be invited to other children's social activities. Lower-income students also were less likely to participate in extracurricular activities. When they did participate, they were less likely to take part in sports teams, scouting, or performing groups—activities for which financial barriers may have been present.

The pattern for lower-income students thus includes lower parental expectations for future education; lower access to learning resources, such as computers; fewer friendship interactions; and fewer after-school extracurricular activities. This combination could well make the expectations of lower levels of educational attainment for lower-income students a reality. The fact that similar income differences have been observed for students in the general population suggests that economic circumstances have important influences on the educational futures of all students.

### Cultural Influences on the Nonschool Hours

Differences between racial/ethnic groups were apparent with regard to some factors explored in this report, but no consistent or pervasive pattern emerged. For example, there were no significant differences between racial/ethnic groups in parents' expectations for students' enrollment in postsecondary education, in overall levels of family support for learning at home, or in the frequency with which students had rules regarding homework, bedtime, or the amount of television they could watch. In contrast, graduating from high school with a regular diploma was markedly more likely to be considered a sure thing by parents of white students than those of African American or Hispanic students. White students also were subject to fewer rules at home than the other two groups, particularly rules about attaining a particular grade point average. They were more likely to be at home after school without adult supervision, and they were the most active participants in organized extracurricular activities overall.

African American students were the most likely to receive a very high level of parental support for learning at home; particularly large percentages were read to and helped with homework often. Hispanic students generally were less involved with individual friendships than other students; they were significantly more likely than white students, for example, to be reported "never" to see friends outside of class, "rarely" or "never" to get phone calls from friends, and not to be invited to other children's social activities. They also were the least likely to take part in volunteer or community service activities.

Asian and Pacific Islander students were the least likely to receive several kinds of support for learning at home, including homework help, being read to by parents, or being talked with about school. They also were the least likely to have rules at home about doing household chores. However, they were among the most likely students to be provided with a computer at home and, among those with computers, to use them for educational purposes. Computer technology also was prominent in their social interactions; among those who had a home computer, Asian and Pacific Islander students were the most likely to use it to participate in email or chat room interactions. Participation in extracurricular group activities was less common for this group than other students.

Students with American Indian or Alaska Native heritage were subject to the highest expectations for high school graduation and enrollment in postsecondary school. However, they were the least likely to be expected to graduate from a 4-year college; 2-year college graduation was a more common expectation on the part of parents of these students.

These differences in both parents' activities in support of students' learning and in students' activities in their nonschool hours suggest a cultural component to these factors.

## Looking Ahead

These findings from SEELS provide the most comprehensive look yet available of the activities of elementary and middle school students with disabilities in "the other 80%" of their time—their nonschool hours. These activities have the potential to add much to their development and to their experiences at school. The important question remains, however: what difference do these nonschool experiences make? Future SEELS analyses will address this question in depth.

For example, research on students in the general population has identified a broad range of benefits to students from their parents' involvement in their education at home and at school. Additional analyses will examine whether the relatively high rates of parental support for learning at home by parents of students with disabilities are mirrored in high rates of parental involvement in activities at school, such as participation in the Individualized Educational Plan (IEP) process, volunteering at school, or attending school meetings or classroom events.

Taking the level of all kinds of parent involvement into account, future analyses can then explore whether the benefits of parental involvement for the general student population also accrue to students with disabilities as a whole, and whether there are important differences in the impacts of parents' involvement for students with different kinds of disabilities. It is clear that parental involvement is only one input in a complex mix of factors in the equation that predicts student achievements. Some parents and students, regardless of the level of parents' involvement, may come up against the limits on achievement imposed by the child's disability. Other parents and children may face the limitations on experiences and achievements imposed by economic or other kinds of constraints. Future SEELS analyses will identify variations for key subgroups of students in the expectations of parents, the supports they provide, and the effects of those variations on student performance.

Other analyses will examine issues of parent support longitudinally, exploring the extent to which parent expectations and supports change in kind or level as students age. The links between parents' expectations of students' educational attainment early in life and their later school performance also can be addressed.

We also will investigate further the intriguing finding that parents who participated in training provided for parents of students with disabilities—particularly training provided by OSEP-funded Parent Training and Information Centers—were more actively engaged in supporting children's learning at home than parents who had not had such training. For example, we will explore whether participating in training also is associated with parents' involvement at school and their views of the process of developing students' IEPs.

The activities of students in their nonschool hours also will be explored further in future SEELS analyses. For example, research on students in the general population has suggested there are salutary effects from students' participation in extracurricular activities. In that area, however, it also is unclear whether effects are similar for students with disabilities. SEELS analyses will enable exploration of that issue. The longitudinal nature of SEELS also gives a solid base of information for examining such important issues as the development of friendships and extracurricular pursuits as students age and transition between the different social contexts of elementary, middle, and high school. It is quite possible that the nature or level of involvement for the relatively young students that are the focus of this report will change as students enter

into the sometimes treacherous waters of adolescent relationships. Students who may be able to negotiate friendships and extracurricular activities in elementary school may find more serious challenges to doing so as adolescents.

Results of these extensions of the analyses reported here will be forthcoming from SEELS over the next several years, as will important analyses of issues involving students' programs and performance at school.

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# Appendix A
# SEELS SAMPLING, DATA COLLECTION, AND ANALYSIS PROCEDURES: WAVE 1 PARENT INTERVIEW/SURVEY

This appendix describes several aspects of the SEELS methodology relevant to the Wave 1 parent interview/survey, including:

- Sampling local education agencies (LEAs), schools, and students
- Parent interview and survey procedures and response rates
- Weighting of the parent interview/survey data
- Estimating and using standard errors
- Calculating statistical significance
- Measurement issues.

## SEELS Sample Overview

The SEELS sample was constructed in two stages. A sample of 1,124 LEAs was selected randomly from the universe of approximately 14,000 LEAs that serve students receiving special education in at least one grade from first to seventh grade.[1] These districts and 77 state-supported special schools that serve primarily students with hearing and vision impairments and multiple disabilities were invited to participate in the study. A total of 245 LEAs and 32 special schools agreed to participate and provided rosters of students receiving special education in the designated age range, from which the student sample was selected.

The roster of all students receiving special education from each LEA[2] and special school was stratified by disability category. Students then were randomly selected from each disability category. Sampling fractions were calculated that would produce enough students in each category so that, in the final study year, we can generalize to most categories individually with an acceptable level of precision, accounting for attrition and for response rates to both the parent interview and the direct assessment. A total of 11,512 students were selected and eligible to participate in the SEELS parent interview/survey sample.

Details of the LEA and students samples are provided below.

## The SEELS LEA Sample

### Defining the Universe of LEAs

The SEELS sample includes only LEAs that have teachers, students, administrators, and operating schools—that is, "operating LEAs." It excludes such units as supervisory unions; Bureau of Indian Affairs schools; public and private agencies, such as correctional facilities;

[1] The 1999 Quality Education Data, Inc. (QED) database was used to construct the sampling frame.

[2] LEAs were instructed to include on the roster any student for which they were administratively responsible, even if the student was not educated within the LEA (e.g., attended school sponsored by an education cooperative or was sent by the LEA to a private school). Despite these instructions, some LEAs may have underreported students served outside the LEA.

LEAs from U.S. territories; and LEAs with 10 or fewer students in the SEELS age range, which would be unlikely to have students with disabilities.

The public school universe data file maintained by Quality Education Data (QED, 1998) was used to construct the sampling frame because it had more recent information than the alternative list maintained by the National Center for Education Statistics (1997). Correcting for errors and duplications resulted in a master list of 13,426 LEAs that were expected to have at least one student receiving special education in the appropriate age range. These comprised the SEELS LEA sampling frame.

### Stratification

The SEELS LEA sample was stratified to increase the precision of estimates by eliminating between-strata variance, to ensure that low-frequency types of LEAs (e.g., large urban districts) were adequately represented in the sample, to improve comparisons with the findings of other research, and to make SEELS responsive to concerns voiced in policy debate (e.g., differential effects of federal policies in particular regions, LEAs of different sizes). Three stratifying variables were used:

**Region.** This variable captures essential political differences, as well as subtle differences in the organization of schools, the economic conditions under which they operate, and the character of public concerns. The regional classification variable selected was used by the Department of Commerce, the Bureau of Economic Analysis, and the National Assessment of Educational Progress (categories include Northeast, Southeast, Midwest, and West).

**LEA size (student enrollment).** LEAs vary considerably by size, the most useful available measure of which is pupil enrollment. A host of organizational and contextual variables are associated with size that exert considerable potential influence over the operations and effects of special education and related programs. In addition, total enrollment serves as an initial proxy for the number of students receiving special education served by an LEA. The QED database provides enrollment data from which LEAs were sorted into four categories serving approximately equal numbers of students:

- **Very large** (estimated enrollment greater than 17,411 in grades 1 through 7)
- **Large** (estimated enrollment from 4,707 to 17,411 in grades 1 through 7)
- **Medium** (estimated enrollment from 1,548 to 4,706 in grades 1 through 7)
- **Small** (estimated enrollment between 10 and 1,547 in grades 1 through 7).

**LEA/community wealth.** As a measure of district wealth, the Orshansky index (the proportion of the student population living below the federal definition of poverty) is a well-accepted measure. The distribution of Orshansky index scores was organized into four categories of LEA/community wealth, each containing approximately 25% of the student population in grades 2 through 7:

- High (0% to 12% Orshansky)
- Medium (13% to 34% Orshansky)

- Low (35% to 45% Orshansky)
- Very low (over 45% Orshansky).

The three variables generate a 64-cell grid into which the universe of LEAs was arrayed.

#### LEA Sample Size

On the basis of an analysis of LEAs' estimated enrollment across LEA size, and estimated sampling fractions for each disability category, 297 LEAs (and as many state-sponsored special schools as would participate) was considered sufficient to generate the student sample. Taking into account the rate at which LEAs were expected to refuse to participate, a sample of 1,124 LEAs was invited to participate, from which 297 participating LEAs might be recruited. A total of 245 LEAs actually provided students for the sample. Although the sample of LEAs was somewhat smaller than anticipated, analyses of the characteristics of the LEA sample, in weighted and unweighted form, on the sampling variables of region, LEA size, and LEA wealth confirmed that that the weighted LEA sample closely resembled the LEA universe with respect to those variables, thus yielding an initial sample of LEAs that was representative of the nation.

In addition to ensuring that the LEA sample matched the universe of LEAs on variables used in the sampling, it was important to ascertain whether this stratified random sampling approach resulted in skewed distributions on relevant variables not included in the stratification scheme. Two variables from the QED database were chosen to compare the "fit" between the first-stage sample and the population: the LEA's metropolitan status and its proportion of minority students. Analyses revealed that the fit between the weighted LEA sample and the LEA universe was quite good.

### The SEELS Student Sample

Determining the size of the SEELS student sample took into account the duration of the study, desired levels of precision, and assumptions regarding attrition and response rates. We calculated that approximately three students would need to be sampled for each one student who would have both a parent/guardian interview and a direct assessment in Wave 3 of SEELS data collection.

The SEELS sample design emphasizes the need to generate fairly precise estimates of proportions and ratios for students receiving special education as a whole and for each of the 12 special education disability categories. A level of precision for standard errors of 3.6% was considered sufficient for study purposes. Thus, by sampling 1,150 students per disability category (except for TBI and deaf-blind) in year 1, we estimated there would be 388 students per category with both a parent interview and a direct assessment in year 5. Assuming a 50% sampling efficiency (which will tend to be exceeded for almost all disability categories), the 388 students would achieve a standard error of estimate of 3.6%. In addition, all students with traumatic brain injury or with deaf-blindness in participating LEAs and special schools were selected

SRI contacted LEAs and special schools to obtain their agreement to participate in the study and request rosters of students receiving special education who were between the ages of 6 and

12 on September 1, 1999 and in at least first grade.[3] Requests for rosters specified that they contain the names and addresses of students receiving special education under the jurisdiction of the LEA, the disability category of each student, and the students' birthdates or ages. Some LEAs would provide only identification numbers for students, along with the corresponding birthdates and disability categories. When students were sampled in these LEAs, identification numbers of selected students were provided to the LEA, along with materials to mail to their parents/guardians (without revealing their identity to SRI).

After estimating the number of students receiving special education in the SEELS age range, the appropriate fraction of students in each category was selected randomly from each LEA. In addition, from the state-supported special schools, 100% of students with deaf-blindness, 50% of students with visual impairments, and 15% of those with hearing impairments were sampled. In cases in which more than one child in a family was included on a roster, only one child was eligible to be selected. LEAs and special schools were notified of the students selected and contact information for their parents/guardians was requested.

### Parent Interview/Survey

The data source for the findings reported here was parents/guardians of SEELS sample members, who were interviewed by telephone or surveyed by mail. The SEELS conceptual framework holds that a child's nonschool experiences, such as extracurricular activities and friendships; historical information, such as age when disability was first identified; household characteristics, such as socioeconomic status; and a family's level and type of involvement in school-related areas are crucial to student outcomes. Parents/guardians are the most knowledgeable about these aspects of students' lives.

Matches of names, addresses, and telephone numbers of SEELS parents with existing national locator databases were conducted to maximize the completeness and accuracy of contact information and subsequent response rates. Letters were sent to parents to notify them that their child had been selected for SEELS and that we would be attempting to contact them by telephone. A toll-free telephone number was included in the letter for parents to call in to be interviewed if they could not be reached by telephone or to make an appointment for the interview at a convenient time. If the computer match of contact information, letters mailed to parents, and attempted telephone interviews revealed that neither a working telephone number or accurate address was available for a student, that student was considered ineligible for the study and removed from the sample. Students who had no adult in the household who spoke either English or Spanish were ineligible for the study.

Computer-assisted telephone interviewing (CATI) was used for parent interviews, which were conducted between from mid-July through early December 2000. Interviews were conducted in both English and Spanish.

All parents with an accurate address who could not be reached by telephone were mailed a self-administered questionnaire in a survey period that extended from December 2000 through March 2001. The questionnaire contained a subset of key items from the telephone interview. Exhibit A-1 reports the responses to the telephone and mail surveys.

[3] Students who were designated as being in ungraded programs also were sampled if they met the age criteria.

**Exhibit A-1**
**RESPONSE RATES FOR PARENT/GUARDIAN TELEPHONE INTERVIEW AND MAIL SURVEY**

| | Number | Percentage |
|---|---|---|
| Total eligible sample | 11,512 | 100.00 |
| Respondents | | |
| Completed telephone interview | 8,624 | 74.9 |
| Partial telephone interview completed | 132 | 1.2 |
| Complete mail questionnaire | 1,068 | 9.3 |
| Total respondents | 9,824 | 85.3 |
| Nonrespondents | | |
| Refused | 455 | 4.0 |
| Language barrier | 156 | 1.4 |
| No response | 1,077 | 9.4 |

Overall, 93% of respondents reported that they were parents of sample members (biological, adoptive, or step), and almost 1% were foster parents. Four percent were relatives other than parents, 1% were nonrelative legal guardians, and fewer than 1% reported other relationships to sample members.

### Weighting the Wave 1 Parent Data

In describing students with disabilities, we generally report percentages of students with a particular characteristic, status, or experience (e.g., the percentage of students living with a single parent or having moderate hearing loss). Percentages are weighted to represent the U.S. population of students receiving special education who were ages 6 to 12 on September 1, 1999 and in at least first grade. They are not percentages of the sample, but estimates for the population of students with disabilities in the SEELS age range as a whole and for students in each of the federal special education disability categories in use in 1999. In other words, rather than each student counting equally in calculating percentages, each student's value for a variable is weighted proportionate to the number of students like him/her nationally. Hence, for example, values for students with learning disabilities are weighted more heavily than those for students with visual impairments when discussing students as a group because of the significantly greater number of students with learning disabilities in the population as a whole.

Exhibit A-2 illustrates the concept of sample weighting and its effect on percentages or means that are calculated for students with disabilities as a group. In this example, 12 students are included in a sample, 1 from each of 12 disability groups, and each has a hypothetical value regarding whether that student participated in organized group activities outside of school (1 for yes, 0 for no). Six students participated in such activities, which would result in an unweighted value of 50% participating. However, this would not accurately represent the national population of students with disabilities because many more students are classified as having a learning disability or speech impairment than orthopedic or other health impairments, for example. Therefore, in calculating a population estimate, we apply weights in the example that correspond to the proportion of students in the population that are from each disability category (actual SEELS weights account for disability category and several aspects of the districts from which they were chosen). The sample weights for this example appear in column C. Using these weights, the weighted population estimate is 89%. The percentages in all SEELS tables are similarly weighted population estimates, whereas the sample sizes are the actual number of cases on which the weighted estimates are based (similar to the 12 cases in Exhibit A-2).

**Exhibit A-2**
**EXAMPLE OF WEIGHTED PERCENTAGE CALCULATION**

| Disability Category | A<br>Number in Sample | B<br>Participated in Group Activities | C<br>Weight for Category | D<br>Weighted Value for Category |
|---|---|---|---|---|
| Learning disability | 1 | 1 | 4.3 | 4.3 |
| Speech/language impairment | 1 | 1 | 3.0 | 3.0 |
| Mental retardation | 1 | 1 | 1.0 | 1.0 |
| Emotional disturbance | 1 | 0 | .8 | 0 |
| Hearing impairment | 1 | 1 | .1 | .1 |
| Visual impairment | 1 | 1 | .1 | .1 |
| Orthopedic impairment | 1 | 0 | .1 | 0 |
| Other health impairment | 1 | 1 | .4 | .4 |
| Autism | 1 | 0 | .1 | 0 |
| Multiple disabilities | 1 | 0 | .1 | 0 |
| TOTAL | 10 | 6 | 10 | 8.9 |
| | Unweighted sample percentage = 60% (Column B total divided by Column A total) | | Weighted population estimate = 89% (Column D total divided by Column C total) | |

## Sample Weighting

The students in LEAs and state schools with parent interview/survey data were weighted to represent the universe of students in LEAs and state schools using the following process:

- For each of the 64 LEA sampling cells, an LEA student sampling weight was computed. This weight is the ratio of the number of students in participating LEAs in that cell divided by the number of students in all LEAs in that cell in the universe of LEAs. The weight represents the number of students in the universe who are represented by each student in the participating LEAs. For example, if participating LEAs in a particular cell served 4,000 students and the universe of LEAs in the cell served 400,000 students, then the LEA student sampling weight would be 100.
- For each of the 64 LEA cells, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters of participating LEAs in a cell by the adjusted LEA student sampling weight for that cell. For example, if 350 students with learning disabilities were served by LEAs in a cell, and the LEA student sampling weight for that cell was 100 (that is, each student in the sample of participating LEAs in that cell represented 100 students in the universe), then we would estimate there to be 35,000 students with learning disabilities in that cell in the universe.
- For the state schools, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters by the inverse of the proportion of state schools that submitted rosters.
- The initial student sampling weights were adjusted by disability category so that the sum of the weights (that is, the initial student sampling weights multiplied by the number of

students with completed interviews) was equal to the number of students in the geographical and wealth cells of each size strata. The adjustments were typically small and essentially served as a nonresponse adjustment. However, the adjustments could become substantial when there were relatively few interviewees (as occurred in the small and medium strata for the lowest-incidence disabilities) because in these cases, there might not be any interviewees in some cells, and it was necessary to adjust the weights of other interviewees to compensate. Two constraints were imposed on the adjustments: 1) within each size stratum, the cells weights could not vary from the average weight by more than a factor of 2, and 2) the average weight within each size strata could not be larger than 5 times the overall average weight. These constraints substantially increased the efficiency of the sample at the cost of introducing a small amount of weighting bias (discussed below).

- In a final step, the weights were adjusted so that they summed to the number of students in each disability category, as reported to OSEP by the states for the 1999-2000 school year (OSEP, 2001).

### Bias

As mentioned earlier, the imposition of constraints on the adjusted weights increased sampling efficiency at the cost of introducing a small amount of bias. The largest increases in sampling efficiency and the largest biases occurred for the categories of autism and visual impairment; the smallest increase in efficiency and biases occurred for specific learning disabilities. The principal bias for autism was the reduction in the proportion of students from the Northeast (from 22% to 18%), from the West/Southwest (from 34% to 30%) and from small LEAs (from 16% to 13%). The principal bias for visual impairment is in small LEAs (from 12% to 4%), in very wealthy LEAs (from 20% to 17%). For the category of learning disability, all biases introduced by the imposition of constraints on the student weights are negligible. Considering the increase in sampling efficiency for autism (from 23% to 53%) and visual impairment (from 18% to 53%), we consider these biases to be acceptable.

The reason for the reduction in the proportion of students represented in the cells mentioned above is that there were relatively few students with interview/survey data in those cells. For example, in small LEAs, there were only six students with visual impairments with data, requiring that they represent an estimated 1,771 students with visual impairments from small LEAs. The weighting program determined that the average weight required (i.e., 295) violated the constraints, and therefore reduced these weights to a more reasonable value (i.e., 84.4).

### Estimating Standard Errors

The SEELS sample is both stratified and clustered, so that calculating standard errors by formula is not straightforward. Standard errors for means and proportions can also be estimated using pseudo-replication, a procedure that is widely used by the U.S. Census Bureau and other federal agencies involved in fielding complex surveys. To that end, we developed a set of weights for each of 50 half-replicate subsamples. Each half-replicate involved randomly selecting half of the total set of LEAs that provided contact information and then weighting that half to represent the entire universe. Randomization was accomplished within each of the 64

sampling cells. The half-replicates were used to estimate the variance of a sample mean by: 1) calculating the mean of the variable of interest on the full sample and each half-sample using the appropriate weights; 2) calculate the squares of the deviations of the half-sample estimate from the full sample estimate; and 3) adding the squared deviations and divide by (n-1) where n is the number of half-replicates.

Although the procedure of pseudo-replication is less unwieldy than development of formulas for calculating standard errors, it is not easily implemented using the Statistical Analysis System (SAS), the analysis program used for SEELS, and it is computationally expensive. In the past, we have found that it was possible to develop straightforward estimates of standard errors using the effective sample size.

When respondents are independent and identically distributed, the effective sample size for a weighted sample of N respondents can be approximated as

$$Neff = N \times (E^2[W] / (E^2[W] + V[W]$$

where Neff is the effective sample size, $E^2[W]$ is the square of the arithmetic average of the weights and V[W] is the variance of the weights. For a variable X, the standard error of estimate can typically be approximated by sqrt ( V[X]/Neff ), where V[X] is the weighted variance of X.

SEELS respondents are not independent of each other because they are clustered in LEAs and the intra-cluster correlation is not zero. However, the intra-cluster correlation traditionally has been quite small, so that the formula for the effective sample size shown above has worked well. To be conservative, however, we multiplied the initial estimate by a "safety factor" that assures that we will not underestimate the standard error of estimate.

To determine the adequacy of fit of the variance estimate based on the effective sample size and to estimate the required safety factor, we selected 24 questions with 95 categorical and 2 continuous responses. We calculated standard errors of estimates for each response category and the mean response to each question for each disability group using both pseudo-replication and the formula involving effective sample size. A safety factor of 1.25 resulted in the effective sample size standard error estimate underestimating the pseudo-replicate standard error estimate for 92% of the categorical responses and 89% of the mean responses. Because the pseudo-replicate estimates of standard error are themselves estimates of the true standard error, and are therefore subject to sampling variability, we considered this to be an adequate margin of safety. All standard errors in Wave 1 are 3% or less, except for categories of deaf-blindness and traumatic brain injury, where sample sizes are very small.

### Calculating Significance Levels

Readers may want to compare percentages or means for different subgroups to determine, for example, whether the difference in the percentage of students in poverty between students with learning disabilities and those with mental retardation is greater than would be expected to occur by chance. To calculate whether the difference between percentages is statistically significant with 95% confidence (often denoted as $p<.05$), the squared difference between the two percentages of interest is divided by the sum of the two squared standard errors. If this product

is larger than 3.84, the difference is statistically significant at the .05 level—i.e., it would occur by chance fewer than 5 times in 100. Presented as a formula, a difference in percentages is statistically significant at the .05 level if:

$$\frac{(P_1P_2)^2}{SE_1^2 + SE_2^2} > 1.96^2$$

where $P_1$ and $SE_1$ are the first percentage and its standard error and $P_2$ and $SE_2$ are the second percentage and the standard error. If the product of this calculation is 6.63 to 10.79, the significance level is .01, products of 10.8 or greater are significant at the .001 level.

### Measurement Issues

The chapters in this report include information on specific variables included in analyses. However, several general points about SEELS measures that are used repeatedly in analyses should be clear to readers as they consider the findings reported here.

**Categorizing students by primary disability.** Information about the nature of students' disabilities came from rosters of all students in the SEELS age range receiving special education in the 1999-2000 school year under the auspices of participating LEAs and state-supported special schools. In data tables included in this report, students are assigned to a disability category on the basis of the primary disability designated by the student's school or district. Definitions of disability categories and criteria and methods for assigning students to them vary from state and to state and even between districts within states. Because we have relied on category assignments made by schools and districts, SEELS data should not be interpreted as describing students who truly had a particular disability, but rather as describing students who were categorized as having that disability by their school or district. Hence, descriptive data are nationally generalizable to students in the SEELS age range who were classified as having a particular disability in the 1999-2000 school year.

**Demographic characteristics.** Findings in this report are provided for students who differ in age, gender, household income, and race/ethnicity. For the majority of students, age, gender, and race/ethnicity were determined from data provided by students' schools or districts for sampled students. For students for whom information was not provided by schools or districts, data for these variables were gathered during the parent interview. Classifying the household income of students' households relied exclusively on information provided during the parent interview/survey.

**Comparisons with the general population of students.** Many of the analyses reported here do not have precise statistical comparisons with the general population of students. Instead, we usually have drawn comparisons using published data. For many of these comparisons, differences in samples (e.g., ages of students) or measurement (e.g., question wording on surveys) reduce the direct comparability of SEELS and general population data. Where these limitations affect the comparisons, they are pointed out in the text and the implications for the comparisons are noted. Comparisons using data from the National Household Education Survey

(NHES) are more precise because an analysis file was created from the publicly available data to match the age of SEELS students.

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